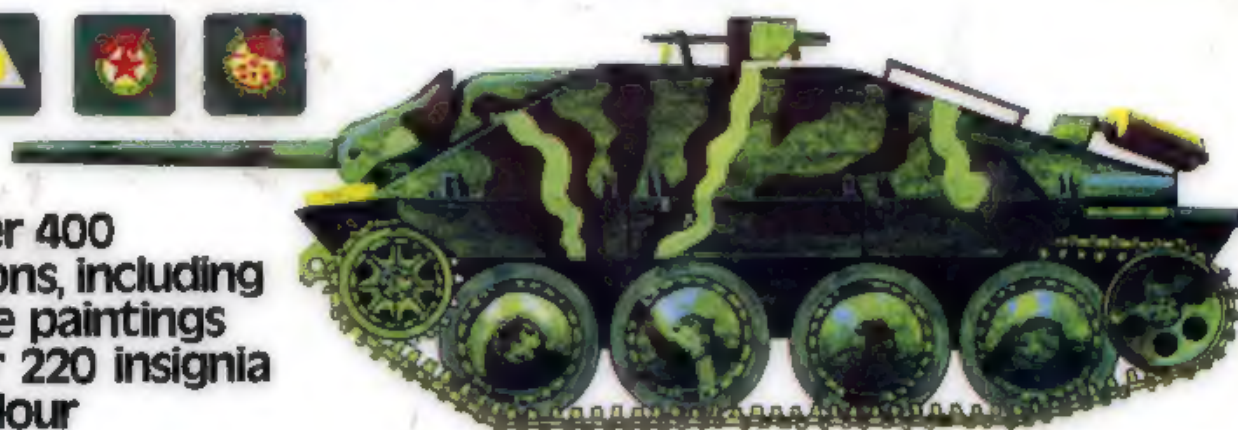


# THE EASTERN FRONT

**Armour Camouflage and Markings,  
1941 to 1945**



With over 400  
illustrations, including  
56 vehicle paintings  
and over 220 insignia  
in full colour



**Steven J. Zaloga and James Grandsen**

# Germany

The Wehrmacht employed one of the most complicated and comprehensive systems of combat vehicle markings of all the belligerents in the Second World War. Vehicle markings often mirrored German fortunes on the Eastern Front. In the heady days of 'Barbarossa', German tanks were adorned gaudily in national markings and heraldic unit insignia, in cavalier disregard of counter-intelligence requirements. But, as the war started to turn in favour of the Soviet Union after Stalingrad in January 1943, far more prudence was shown and markings began to disappear. Mimetic camouflage painting was introduced in 1943 and, finally, in 1944 orders were issued forbidding the use of heraldic divisional insignia.

## Camouflage Painting

During Operation 'Barbarossa' in the summer of 1941, German armoured vehicles were finished in the same fashion as they had been in Poland in 1939 and France in 1940: panzer grey overall. This colour was a very dark blue grey and covered the entire exterior of the vehicle, including the inner faces of hatches that opened outward. The only other major colours used on armoured vehicles were a light cream paint used in the enclosed spaces of the fighting compartment interior, and a red oxide primer, used mainly as an undercoat and usually not evident. The Wehrmacht was caught largely unprepared for the bitter 1941-42 winter fighting, and most units were obliged to improvise winter snow camouflage for their vehicles. Paint was seldom available, leading to the use of lime whitewash, chalk, and even white cloth. In subsequent winter campaigns,

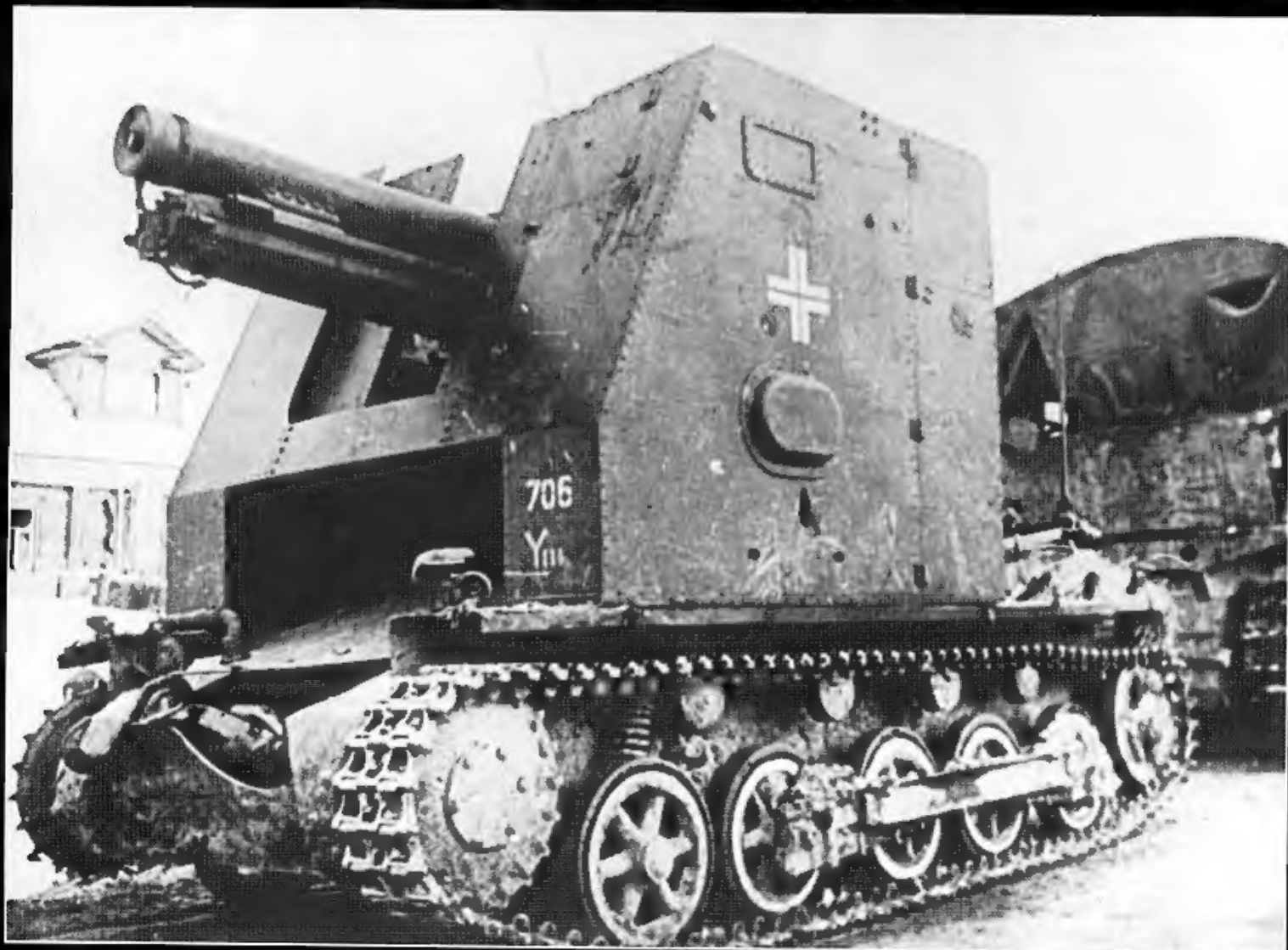
ample supplies of a lime/salt whitewash and other coatings were made available. There was no supply of proper painting equipment in the winter of 1941, leading to the use of brooms, buckets or rags and, as a result, the application was often ragged in appearance.

German armour retained the panzer grey overall finish (with its seasonal white moult) until 18 February 1943 when a new camouflage system was introduced by HM 1943 Nr. 181. The new base colour, called dark yellow, was a greyish mustard that had a tendency to fade to a very light greyish sand shade. In addition, units were issued with two more colours, a drab olive green and a red brown which could be applied over the base dark yellow to create disruptive camouflage patterns. These colours were supplied in 2kg or 20kg tins. The new colours were reminiscent of those shades used by the German Army in 1918 or by the French and Polish armoured forces in 1939-40. No instructions were issued regarding the patterns in which the new colours were to be painted, and this was left to the discretion of unit commanders to permit them to adapt the schemes to local terrain coloration. The additional two colours were provided in a paste form that was diluted with petrol, kerosene or water. The latter was to be used only in emergencies because the paint finish that resulted from using water as a solvent was not durable enough to survive heavy rain. New armoured vehicles arrived from the factories painted in dark yellow overall, and older vehicles were gradually repainted as they were overhauled.

The new camouflage system potentially offered the benefit of flexibility in matching a vehicle's coloration







**Opposite page, top:** A Pz Kpfw III als Tauchpanzer submersible tank after the crossing of the Bug River near Patulin on 22 June 1941 in the opening hours of Operation 'Barbarossa'. In addition to the tactical number, it bears the official divisional insignia of the 18. Panzer Division and, above it, the black and white unofficial insignia of the 18. Panzer Brigade, appropriately enough a skull above waves.

**Opposite page, bottom:** This damaged 15cm sIG33 (SI) auf Pz Kpfw IB displays the divisional marking of the 10. Panzer Division, a yellow Y with three strokes, and the number above it refers to sIG Kompanie 706 to which it was attached. The Balkan cross shows one of the many detail variations of this national insignia.

**Top:** A Panzer IV Aust E of the 12. Panzer Division during fighting in Russia on 9 July 1941. The divisional insignia is evident both on the front and side, as well as the national insignia on the hull side, broken by the radio mast tray. Although by 1941 most German tanks carried their tactical numbers painted conspicuously on the turret, this tank retains the old 1939-40 system of painting the number (32) on a small rhomboid plate attached to the side aft the Balkan cross.

**Middle:** Some German units had insignia uniquely their own, such as this Pz Kpfw II of the Panzer Abteilung 100 (F). This flamethrower unit used an insignia consisting of three thin concentric bands on the turret rear.

**Bottom:** Ground-attack aircraft are notorious for strafing their own troops and vehicles by mistake, and so care is usually taken to provide armoured vehicles with some means of national identification. German forces on the Eastern Front generally used the red/white/black Nazi flag, as in the case of this Hanomag Sd Kfz 251 crew. In some panzer grenadier units, the half-tracks used tactical numbers in the same fashion as tanks, even though this did not become standard practice until the April 1944 orders.



to the local terrain, but this potential often was not realized. Indeed, during the 1943-44 campaigns, much of the Wehrmacht's armoured vehicle inventory remained finished in plain pale mustard, which was far from ideal for operations in temperate Europe as the vehicles were easily identifiable by air or when observed at ground level against the darker terrain colouration. The system's main problem was that it relied on the initiative of the crews themselves, who were frequently too encumbered with more important tasks to bother with vehicle camouflage. A German veteran remarked that the spray equipment provided for applying camouflage paint was the second item tossed overboard from armoured vehicles after the equally treasured gas masks. As the supply system deteriorated, paint was given little priority and even when available often had to be used with sub-standard solvents, such as water, since fuel was so precious. Application was frequently careless, with the paint so thin that the resulting patterns had little disruptive effect and were good for hardly more than crew morale. Some units had better luck with the system by painting whole companies of tanks at one time, usually during rest and refit breaks behind the lines where greater care could be taken.

The problems with the 1943 system seem to have been appreciated, and in the final year of the war the Wehrmacht appear to have introduced a new system or at least new policies concerning the application of camouflage finishes. During this period, German armoured vehicles began sporting a modified version of the 1943 scheme, using the same colours but applied in a more consistent pattern. The vehicles began to be painted with thick, distinct bands of the green and brown secondary colours, with the bands speckled with small dots or bars of the dark yellow colour. This pattern is often called 'ambush scheme' since it proved particularly effective on vehicles lurking in wooded areas

where the pattern resembled the effect of light speckling on the forest floor. Although there has not been any written evidence to verify it, it is the authors' opinion that during this period the Wehrmacht decided to adopt the Luftwaffe's policy of having disruptive camouflage patterns applied at the factory or other centralized locations to ensure more rigid compliance with camouflage directives. The 'ambush pattern' was not the only scheme in use at this time, but its complexity and widespread use among units broadly scattered on both the Eastern and Western Front lends credence to the supposition that a more centralized control over camouflage painting was exerted in 1945.

As the war drew to its bloody climax, logistics in the Wehrmacht supply chain began to crack. Old supplies of panzer grey paint were used when the standard dark yellow was no longer available. For example, a colour photograph survives of a Möbelwagen finished in panzer grey overall camouflaged with bands of red-brown paint. Besides these occasional eccentricities in Germany itself, vehicles under manufacture in Czechoslovakia, such as the Hetzer, began to appear in Czech Army paint which consisted of dark green overall with cream and dark brown swaths.

Painted disruptive camouflage is only marginally effective even in ideal circumstances, and the Wehrmacht on the Eastern Front frequently employed other, sometimes more successful techniques. Foliage and tree branches perhaps are the best form of disruptive camouflage, albeit rather short-lived in effectiveness. In desperation, mud was sometimes used to create disruptive patterns over panzer grey or dark yellow finishes. One surface finish peculiar to German armoured vehicles was Zimmerit paste, a concrete plaster applied to tank superstructures and turrets to prevent the attachment of magnetic mines by Soviet infantry. This did not affect the colour of the vehicle

**Below:** Panzer grenadier divisions had a battalion of tanks to provide support for the infantry, as is the case here with a Pz Kpfw III Ausf E of the 3. Panzer Grenadier Division crossing a bridge over the River Kshen on 30 July 1942. The divisional insignia is evident immediately in front of the tactical number on the turret. Interestingly, a hollow white rhomboid insignia, indicative of a tank battalion, is barely evident on the left mudguard. By this time, the rhomboid insignia was no longer very common as a vehicle marking although its use as a map symbol remained.

**Opposite page, top:** Soviet troops watch the unloading of a Pz Kpfw III Ausf H on 4 December 1942. This provides a good view of the type of disruptive winter camouflage applied to German tanks during the war, often applied with buckets or brooms which gave it a very uneven appearance. Frequently, no attempt was made to cover the entire vehicle. As the war progressed, fewer and fewer markings were evident.

**Opposite page, bottom:** A column of Pz Kpfw IV Ausf G clearly show the variations in winter camouflage finishes. The leading vehicle has a very irregular application of white-wash, while the vehicles behind are covered more thoroughly.









**Top left:** A StuG III Ausf F of StuG Brigade 210, known as the 'Tigerkopf Brigade' because of the unit's distinctive brigade insignia, which is evident here. The brigade was heavily involved in the fighting in the Caucasus, and this view from 1943 shows the assault gun in the new 1943 scheme of dark yellow with olive green over-spray. Besides the tiger's head insignia on the bow and side, the battery letter, 'F', is also clearly visible.

**Left:** A line study of a Pz Kpfw IV Ausf H showing the 1943 camouflage system. The base dark yellow has been over-sprayed with splotchy bands of red-brown and dark olive green. The markings consist of a simple, white, hollow Balkan cross, a hollow stencilled tactical number on the turret skirts and, to the upper left of the cross, a black railroad loading label. This photograph is believed to have been taken during the Kursk offensive in the summer of 1943. (National Archives)

**Top right:** A Pz Kpfw III Ausf J of the 5. SS Panzer Division Wiking during the drive on Stalingrad through the Caucasus in the autumn of 1942. The divisional insignia is evident on the left mudguard. This vehicle was finished in panzer grey, but dust has given it a lighter appearance and obscured the large three-digit tactical number on the turret.

**Centre right:** The first Tiger to be lost on the Eastern Front was this vehicle of sPzAbt 502, knocked out near Rabochii Poselek No. 5 outside Leningrad on 13 January 1942. It still retains the panzer grey overall finish of the period, and on the turret rear is the unit's famous elephant insignia. The vehicle number is carried on the storage bin.

**Bottom right:** A symbol of the German defeat in the Kursk offensive has long been the ill-fated Ferdinands (Sturmgeschütz mit 8.8cm PaK 43/2, Sd Kfz 184, also called Elefants) of Jagd-Regiment 656. This disabled vehicle is finished in dark yellow overall with a curious pattern of dark olive green typical of the Ferdinands at Kursk. Of 89 Ferdinands available at the start of the offensive, 39 were lost.







**Left:** In contrast with other heavy tank battalion Tigers shown here, this Tiger I, photographed in the summer of 1943, shows the 1943 camouflage colours applied in a very distinct and effective disruptive pattern of red-brown and olive green over dark yellow. The unit is not known. (National Archives)

**Below left:** Although many vehicles taking part in the Kursk offensive sported the new three-tone 1943 scheme, some vehicles, such as this 3.7cm Pak36 auf Fgst Zgkw 51, were finished overall in the older dark grey scheme, over which small swaths of dark yellow have been added. Barely evident on the right-hand corner of the hull rear is the trident emblem of 2. Panzer Division. (National Archives)

**Right:** As is quite evident in this head-on shot of a Tiger I in 1943, the 1943 camouflage system was applied with varying results by different units. On this vehicle, the dark green over-spray seems so diluted that it is barely noticeable and has little disruptive effect. The unit insignia on the glacis is as yet unidentified. The tactical number on the turret is 214. (National Archives)



since the Zimmerit was usually applied at the factory prior to painting, but it gave German armoured vehicles a distinct appearance due to the patterns in which it was applied. The application of Zimmerit was confined mainly to tanks and assault guns from 1943 to late 1944, by which time its use was abandoned.

#### National Insignia

The Wehrmacht and other German forces (Waffen SS and Luftwaffe ground divisions) used the Balkan cross as the standard national insignia for armoured vehicles during the war. Its proportions and colours differed, in early 1941 often being only a simplified white border form against the dark panzer grey camouflage, while later appearing in the more conventional form of a black cross with white border, sometimes edged in black. Generally, the crosses were quite small, seldom exceeding 6in, and there was some standardization of positioning. On tanks, the cross was generally found on either hull side and once on the rear. It was seldom seen on the turret but there were some exceptions, such as the Tiger II. The positioning was similar on self-propelled guns and other armoured vehicles. Although usually centrally located on the side, on some tanks, such as the Panther, it was generally carried far forward since the presence of stowage at the middle of the hull made its positioning there unpractical. On captured vehicles it was usually the practice to paint national insignia quite large.

For air identification, the Wehrmacht initially tried insignia painted on turret roofs, but this was inadequate and led to the widespread use of the red, white and black Nazi flag. Late in April 1945, some German tanks began to sport painted white roof crosses in an attempt to mimic Soviet air identity markings of the time and so to give some protection against roaming Allied ground-attack aircraft. The ruse was discovered and, conse-

quently, the Soviets adopted another symbol in May. Although German soft-skin vehicles and unarmoured half-tracks ordinarily did not use painted Balkan crosses, they did use flags for air identity purposes.

#### Unit Insignia

The German armed forces used heraldic insignia to a much greater extent than any other army bar the British. These insignia first began as simple geometric designs assigned by the OKH, but as the war dragged on many units devised their own, often quite elaborate formation signs. On some tanks, not only was an official divisional insignia evident, but sometimes an unofficial panzer regiment crest as well. Probably the most elaborate divisional insignia was the white clock circle of the Herman Göring Division, which had a clock hand pointing to the number indicating the sub-formation. The clock hand itself was painted in the branch colour, which in the case of panzer troops was black. Therefore, a clock face with the hand pointing to 1 o'clock indicated the 1st company, and the black colour of the clock hand indicated a panzer battalion. The HQ company pointed to noon and had a prominent dot in the centre. A major problem faced by the Wehrmacht on the Eastern Front was the prying eyes of hostile resistance groups, which observed vehicle markings to build up accurate order of battle assessments for Soviet and Allied intelligence. In an attempt to confuse enemy intelligence gathering, the Germans occasionally adopted temporary insignia, the best known of which were probably those of the SS panzer divisions in 1943 around the time of the Kursk offensive. The major divisional insignia are shown on p. 49, though it should be kept in mind that details and coloration of these insignia varied.

The casual disregard for counter-intelligence evident in the leisurely use of easily decipherable unit insignia







Top left: The hull of a German tank, destroyed by the 84th Airborne Division, during the Battle of the Bulge, Dec. 1944.

Below left: A German tank, destroyed by the 84th Airborne Division, during the Battle of the Bulge, Dec. 1944.

Top right: A German tank, destroyed by the 84th Airborne Division, during the Battle of the Bulge, Dec. 1944.

Center right: After the offensive in the summer of 1944, German tanks were often found in the ruins of towns.

Bottom right: A German tank, destroyed by the 84th Airborne Division, during the Battle of the Bulge, Dec. 1944.







**Above:** A Tiger II heavy tank in a snowy environment. The tank is positioned in front of a building with a chimney. Several soldiers are visible on top of the tank's turret and hull.

**Left:** Pz Kpfw V Ausf Hg of the 1st SS Panzer Division. The tank is shown in a snowy environment, with the number '32' visible on the turret. The tank is positioned in front of a building with a chimney.

gradually began to disappear through 1943 as the Wehrmacht suffered setback after setback. In January 1943, the OKH ordered all unit insignia to be painted out by units on the Western Front, an order that appears to have been extended to the Eastern Front sometime later in the year. It was not uniformly obeyed.

Although the OKH officially acknowledged only divisional insignia, some smaller formations, such as assault gun brigades (Sturmgeschütz), adopted their own insignia as well. Most Sturmgeschütz brigades had

elaborate heraldic shield insignia, but in most cases when used on armoured vehicles the insignia were greatly simplified. Precise details of the colours used on these insignia have not been available in all cases, so the colouring of some of the insignia shown here should be regarded as speculative. The heavy tank battalions also adopted heraldic unit insignia, but they were only used occasionally and the majority of Tiger tanks went into combat devoid of distinctive unit insignia. The illustrations here show a comprehensive range of the insignia



**Above:** One marking occasionally seen on German armoured vehicles was the chassis (Fahrgestell) number, evident here on the glacis plate (L. 96260) which identifies the vehicle as a 7.5cm St.G. 43 Ausf. C. This number was often over-painted before the vehicle was issued to the troops.

**Right:** A battery of Waspes open fire from positions south of Berdichev during the bitter fighting in the Ukraine, 31 January 1944. In contrast to the 1941 campaign, by 1944 German units were better provided with white paint and white wash with which to camouflage their vehicles for the winter fighting.



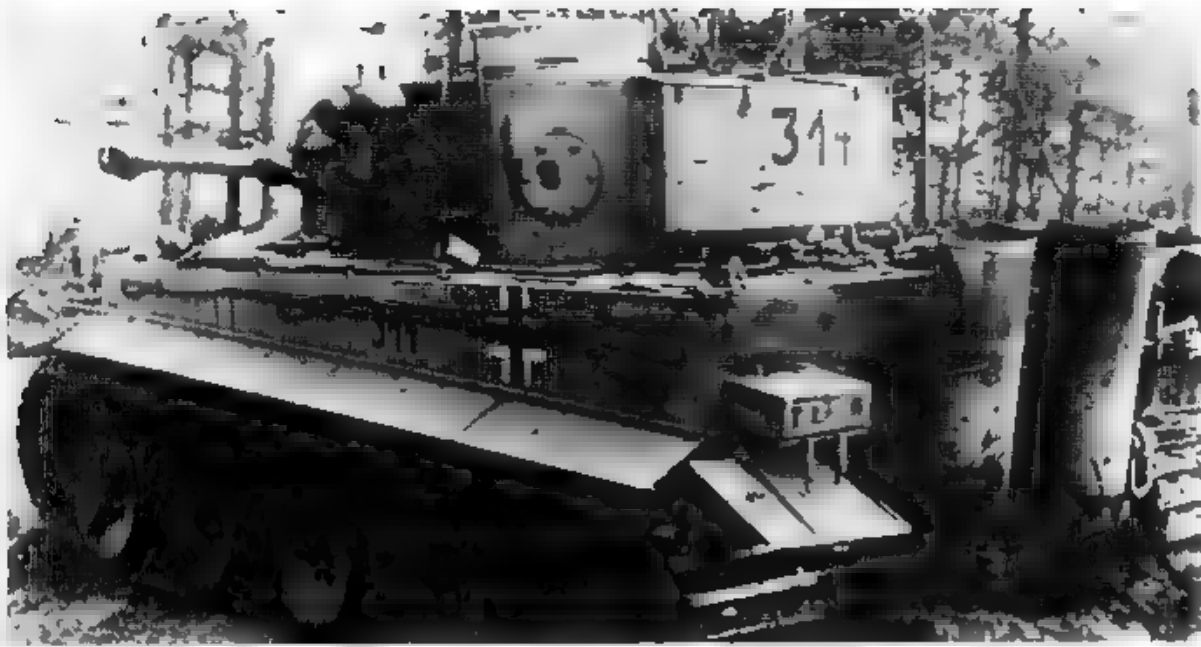
used by the heavy battalions, although some of their units saw little if any fighting on the Eastern Front.

#### Tactical Insignia

The German Army made widespread use of standard map symbols as a form of vehicle marking. These symbols were not widely used on tanks, but could be seen on assault guns, armoured half-tracks and tank destroyers. The system remained relatively constant through the course of the war, though in 1943 a slightly

amended style was adopted which changed some of the symbols in detail. The entire system is not illustrated here due to most of the symbols being inapplicable to armoured vehicles, but some of the most common types are shown. The system has been widely dealt with, and those desiring a survey of the more esoteric symbols should consult some of the books and articles listed in the Bibliography on p. 96. These symbols, when carried, were usually painted on or near the mudguard so that they would be immediately visible to military policemen.

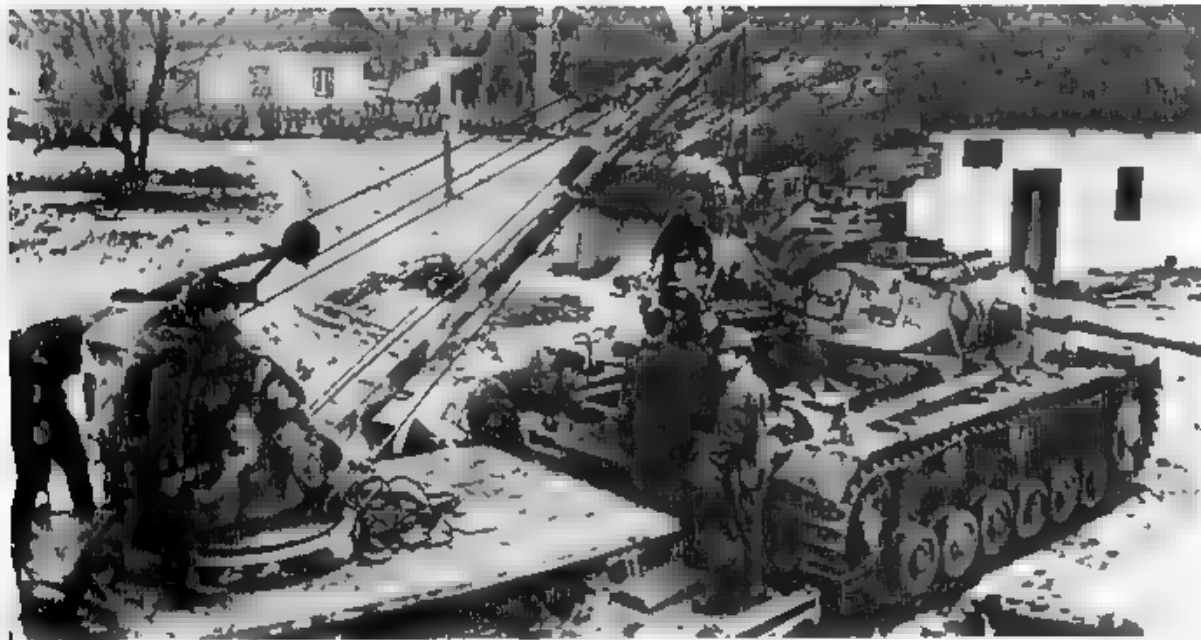




**Top left:** A Tiger II (PzA 502) on the original top in 1943. The turret number 317 is repeated on the turret side and on the side of the hull. The turret number is clearly visible on the turret side.

**Centre left:** A Panther tank (PzA 502) on the original top in 1943. The turret number 317 is repeated on the turret side and on the side of the hull. The turret number is clearly visible on the turret side.

**Bottom left:** A Panther tank (PzA 502) on the original top in 1943. The turret number 317 is repeated on the turret side and on the side of the hull. The turret number is clearly visible on the turret side.



**Opposite page, top:** A Panther tank (PzA 502) on the original top in 1943. The turret number 317 is repeated on the turret side and on the side of the hull. The turret number is clearly visible on the turret side.

**Opposite page, bottom:** A Panther tank (PzA 502) on the original top in 1943. The turret number 317 is repeated on the turret side and on the side of the hull. The turret number is clearly visible on the turret side.







**Top left:** A pair of Panthers, a schwere Panzerabteilung 508, 2. SS Panzer Division, working during operations in the Kampinos forest north of Warsaw in August 1944. The Panther on the right is a Panzerbefehlswagen. Panther command tank carrying the tactical numbering 103 of the 2. SS Panzer Division's signal office's tank 1st Battalion HQ, on parry of a Panzer Regiment.



**Centre left:** A pair of Tiger II Kompanie SPzAuf 109 in action near Zboron in the forest at the end of 1943. The SPzAuf 109 used his own style numbering rather than the 10th SS Panzer Division's numbering of German tanks. The vehicle is seen in a dark color, but the overall appearance is a dark yellow.

**Bottom left:** A pair of Tiger II tanks in action near Zboron in the forest at the end of 1943. The SPzAuf 109 used his own style numbering rather than the 10th SS Panzer Division's numbering of German tanks. The vehicle is seen in a dark color, but the overall appearance is a dark yellow.





**Below:** An Sd Kfz 252 light ammunition half-track on the Eastern Front. The Panzerjägerabteilung Grossdeutschland is passed by a Kolov T 34 747. When captured vehicles such as this Soviet T 34 Model 1943 were impressed into German service they usually had large turret crosses painted on them to avoid confusion. In this case a black Balkan cross on the side of a white winter finish. The Sd Kfz 252 appears to be a Panzer Grenadier. On the right is the divisional headquarters. Above the front tyre is a black 200A (a reference to the correct or prospective future) Archives

### Tactical Numbering

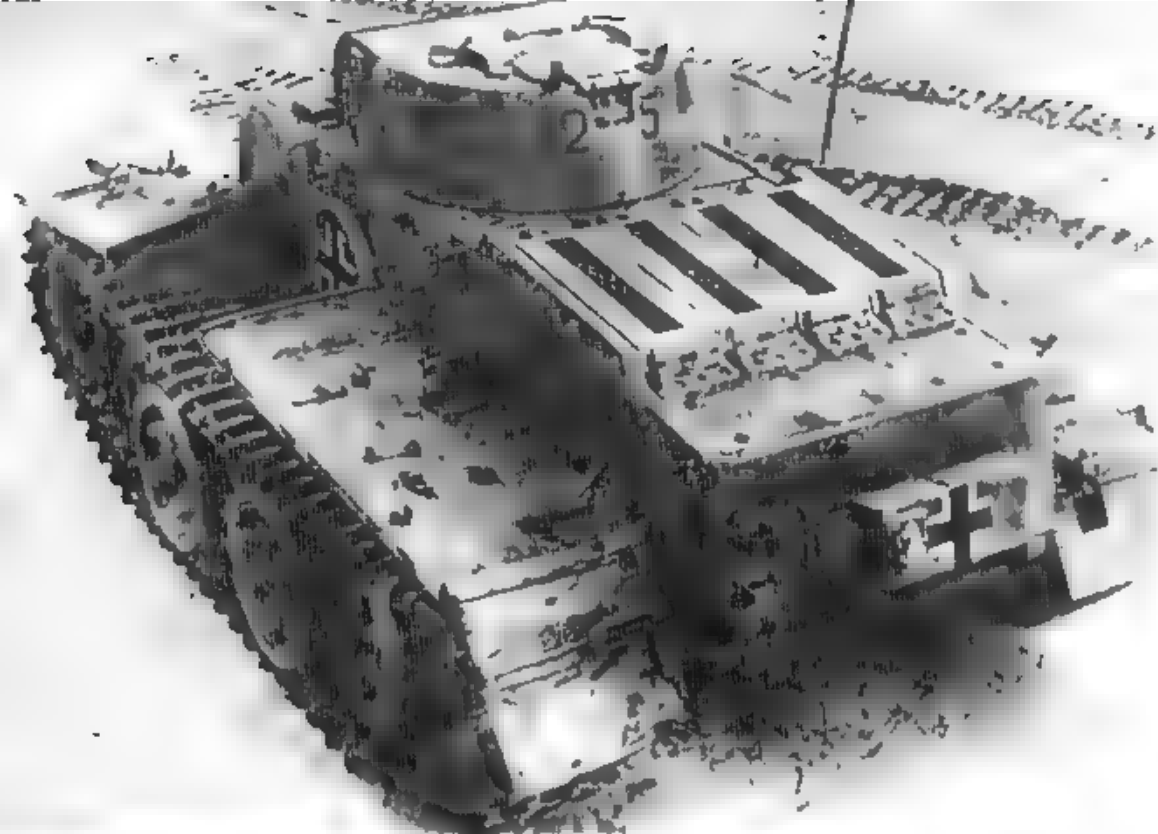
The German armed forces used a standardized form of turret tactical numbering on tanks and some other armoured vehicles. Each tank in a tank company would be assigned a three-digit number. The first digit indicated the company, the second indicated the platoon (0 for HQ, 1 for platoon, etc.), and the last number indicated the position of the tank within the platoon. There was a certain amount of variation in this system, for example, the platoon leader of the first platoon of the second company might be numbered either 210 or 211. In addition to this simple company system, there was also a numbering pattern for regimental and battalion command tanks. Regimental headquarters tanks usually used a two-digit number preceded by an 'R'; for example, R01 was the tank of the regimental commander, R02 was the executive officer. Similarly, the battalion headquarters used Roman numerals, with I for the first battalion, II for the second battalion, and so on; for example II01 would be the tank of the commander of the 2nd battalion. There were some variations in this system, with some regiments preferring the use of letters (A01, B01 instead of 101, II01), or further descriptors (RN1 for regimental radio). German heavy tank battalions (schwere Abteilung) sometimes used an S prefix for their three-digit code, and some flame-thrower and tank destroyer units were seen late in the war also using the S code (though for reasons that are not clear). In April 1944, the Inspector-General of the Panzerwaffe issued orders that formalized the numbering system, but added an important variation. Although most codes to date had been three-digit, AFVs other than tanks in regimental and battalion HQ companies were to use a four-digit number, the first two digits being arbitrarily assigned battalion or regimental code

numbers. Therefore, the number 4203 would indicate the third AFV of a regiment using 42 as its code number. The code numbers were randomly assigned over the number 20, and some units such as armoured reconnaissance battalions were excluded. Besides the use of tactical numbering, some self-propelled artillery units instead used letters to identify batteries, on occasion qualified with a further number.

Tactical numbers varied enormously in style, size and location. Colouring usually depended on the background colour of the vehicle, with white and yellow lettering common on panzer grey vehicles. Some units used coloured numbers edged in white. The sequence of these colours, derived from the old bayonet knot system, were white, red, yellow, blue, light green and dark green (for an HQ vehicle). This system could be used at the discretion of unit commanders; for example, in the case of a panzer division with two panzer regiments and two panzer grenadier regiments, the four regiments would use the colours in the sequence mentioned, with divisional HQ using dark green. The system could also be used for smaller units; for example, to distinguish battalions within regiments. The extent to which the system was used is difficult to determine, and the description here is based on captured German records.

Although not strictly speaking a tactical numbering system, some German documents indicated that geometric signs could be used. The examples given were a diamond (1st battalion, or 1st company, etc.), a circle (2nd), a triangle (3rd) and a square (4th). This system does not appear to have been widely used after 1941, but here are photographs showing its employment with the 1., 2. and 11. Panzer Divisions to at least a limited extent during 'Barbarossa'.





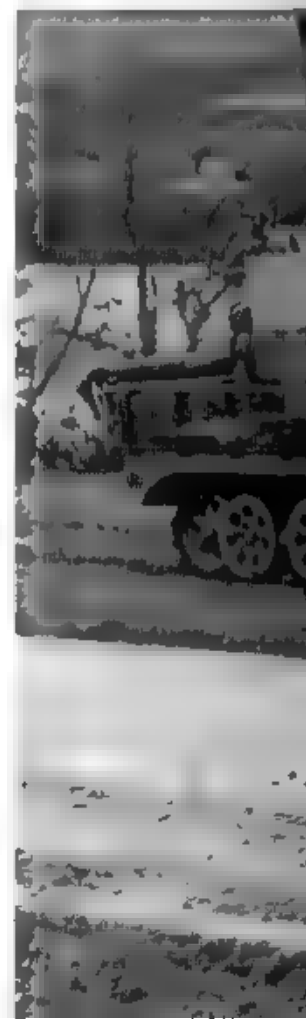
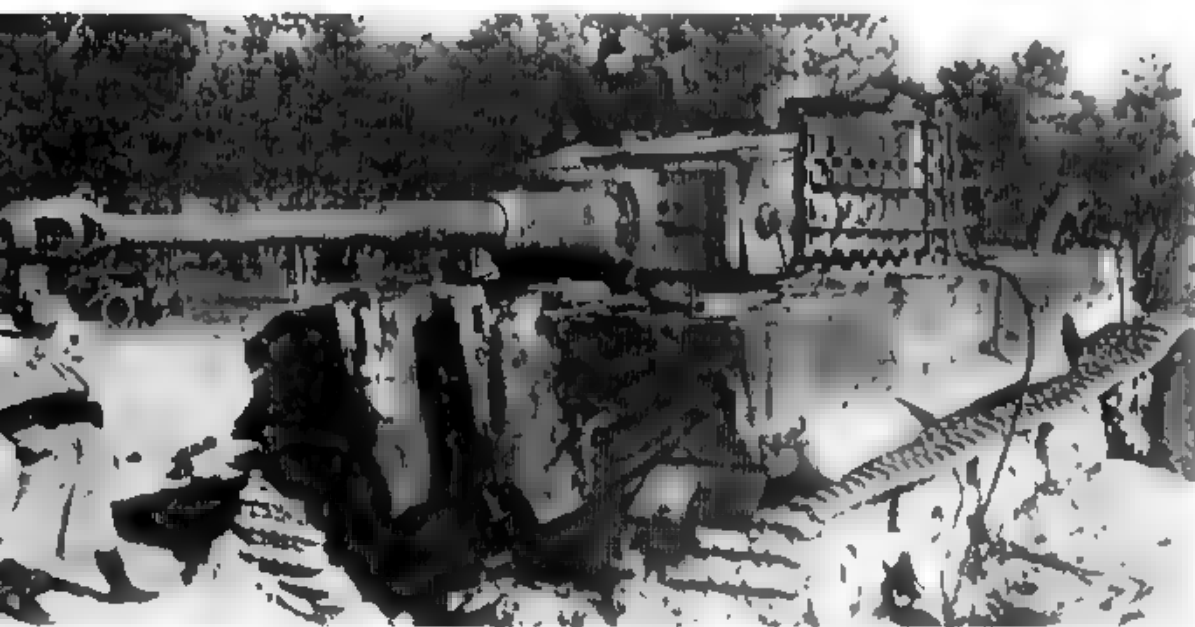
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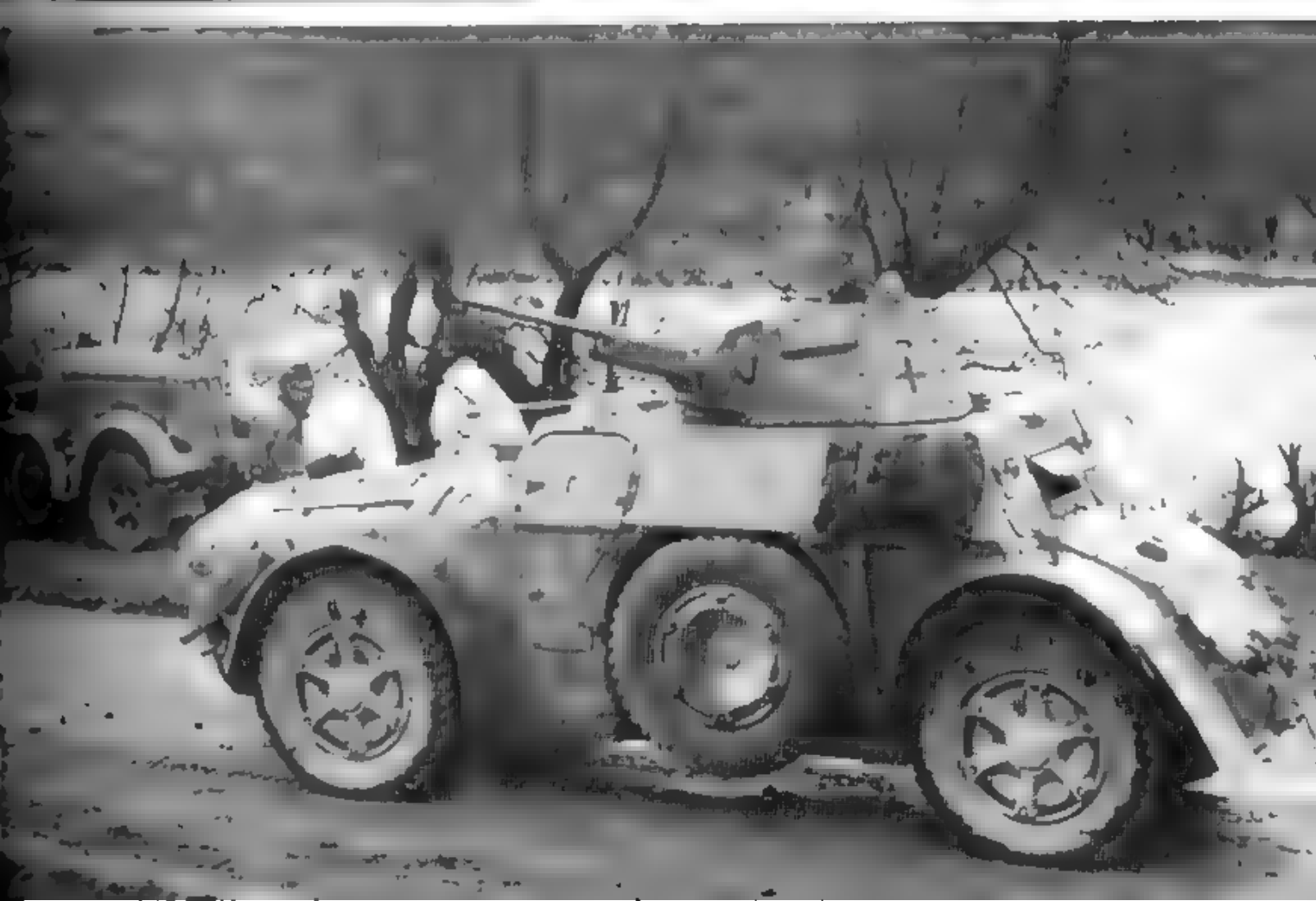
Centre left:

Bottom left:

Top right:

Below:









**Above:** A Soviet T-34 tank in a snowy, wooded landscape. The tank is positioned diagonally, facing towards the right. Its turret is marked with the number '20'. The tank's tracks are heavily treaded, and it has a large road wheel on the right side. The background shows a dense forest of bare trees under a bright sky.



**Left:** A Soviet T-34 tank in a snowy, wooded landscape. The tank is positioned diagonally, facing towards the right. Its turret is marked with the number '20'. The tank's tracks are heavily treaded, and it has a large road wheel on the right side. The background shows a dense forest of bare trees under a bright sky.

**Right:** A Panther finished in the dash pattern in action in 1945. In this case, speckling patterns are quite especially on the turret. This pattern was usually factory applied, or by specialist troops.

**Below:** Not all German armoured units adopted the ambush schemes. Here, an old Panther is parked on the roadside in Poland. It is finished in the typical three-tone scheme.



### Other Markings

Besides these tactical insignia, the German armed forces used a variety of other insignia or markings on their vehicles. German soft-skin vehicles, armoured cars and armoured half-tracks carried licence plates. On armoured vehicles, this consisted of a painted white rectangle with a thin black trim about 90mm high and 475mm long, centrally located on the bow with a six-digit number preceded by the arm of service code (WH-Wehrmacht, WL-Luftwaffe, SS-Waffen SS). The number was repeated on a rear plate, usually about 200mm high by 320mm wide. Often the rear number was painted on a conventional tin licence plate with clipped corners. The licence plates were sometimes stamped with a circular Feldpost number design with a German military eagle in the centre, but this marking was quite rare. Although tanks and assault guns did not carry licence plates, on occasion the factory-applied chassis number could still be seen. Usually, it was painted over

for security reasons before the vehicle reached the troops.

One marking peculiar to the 'Barbarossa' operation and, in fact, a hold-over from the 1940 battle of France were the K (Kleist) and G (Guderian) letters painted on AFV mudguards of vehicles belonging to the panzer groups of these two generals. There were many other miscellaneous markings sometimes carried on German tanks and AFVs. 'Kill' markings traditionally were painted on gun tubes in the style of a thin white band. Names were occasionally painted on vehicles, and even cartoons, though this practice was certainly not as common as on British or American vehicles. More mundane markings, such as railroad loading labels or small stenciling for service notes, could also be seen. The stencilling instructions most commonplace were notes on wheeled vehicles indicating tyre pressure, and notes on the recuperator housings of tanks and assault guns referring to the use of an anti-freeze solution in the hydraulics (braun ark).

**German sales of tanks and assault guns to its Eastern European allies, 1940-44**

	Bulgaria	Finland	Hungary	Romania	Slovakia
1940	37 Pz Kpfw 35(t)				
1941	40 R-35	—	—	—	21 LT vz 40 32 Pz Kpfw 38(t)
1942	—	—	8 Pz Kpfw I 6 PzBfWg 102 Pz Kpfw 38(t) 32 Pz Kpfw IV 10 Pz Kpfw III	11 Pz Kpfw III 11 Pz Kpfw IV 26 Pz Kpfw 35(t)	—
1943	10 Pz Kpfw 38(t) 46 Pz Kpfw IV 25 StuG III 10 Pz Kpfw III 20 Sd Kfz 222, 223	30 StuG III	—	50 Pz Kpfw 38(t) 31 Pz Kpfw IV 4 StuG III	7 Pz Kpfw III 37 Pz Kpfw 38(t) 16 Pz Kpfw II 18 Marder II
1944		29 StuG III 15 Pz Kpfw IV 3 T 34	62 Pz Kpfw IV 5 Panzer 3 Tiger I 40 StuG III 75 Hetzer	100 Pz Kpfw IV 114 StuG III	

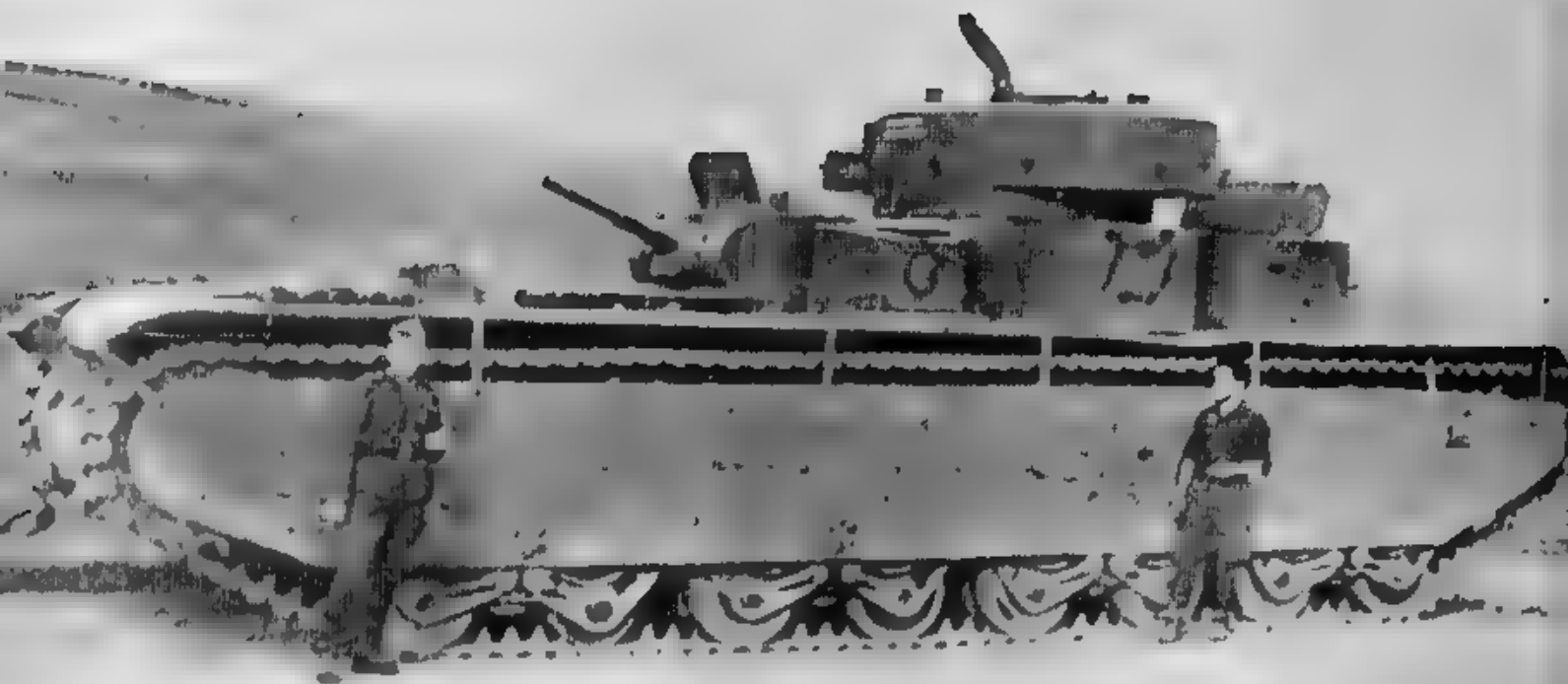
**Below, top:** In contrast to other tanks, Royal Tiger often carried the Balkan "shagun" or "injur" or "sirt" (shown here) in the turret. The cross on the Royal Tiger's turret is seen immediately above the "shagun" (official number 33). **Particula:** Royal Tiger II were knocked out during fighting for the Bannu meadowlands south of Rawalpindi in August 1944. The Tiger pictured belonged to the 4th HF, which was the first to be equipped with this behemoth.

**Below, bottom:** In the 1970s, the city was a major center for the textile and garment industries. The city's economy was heavily dependent on these industries, which provided many jobs for the city's residents. The city's economy was heavily dependent on these industries, which provided many jobs for the city's residents.

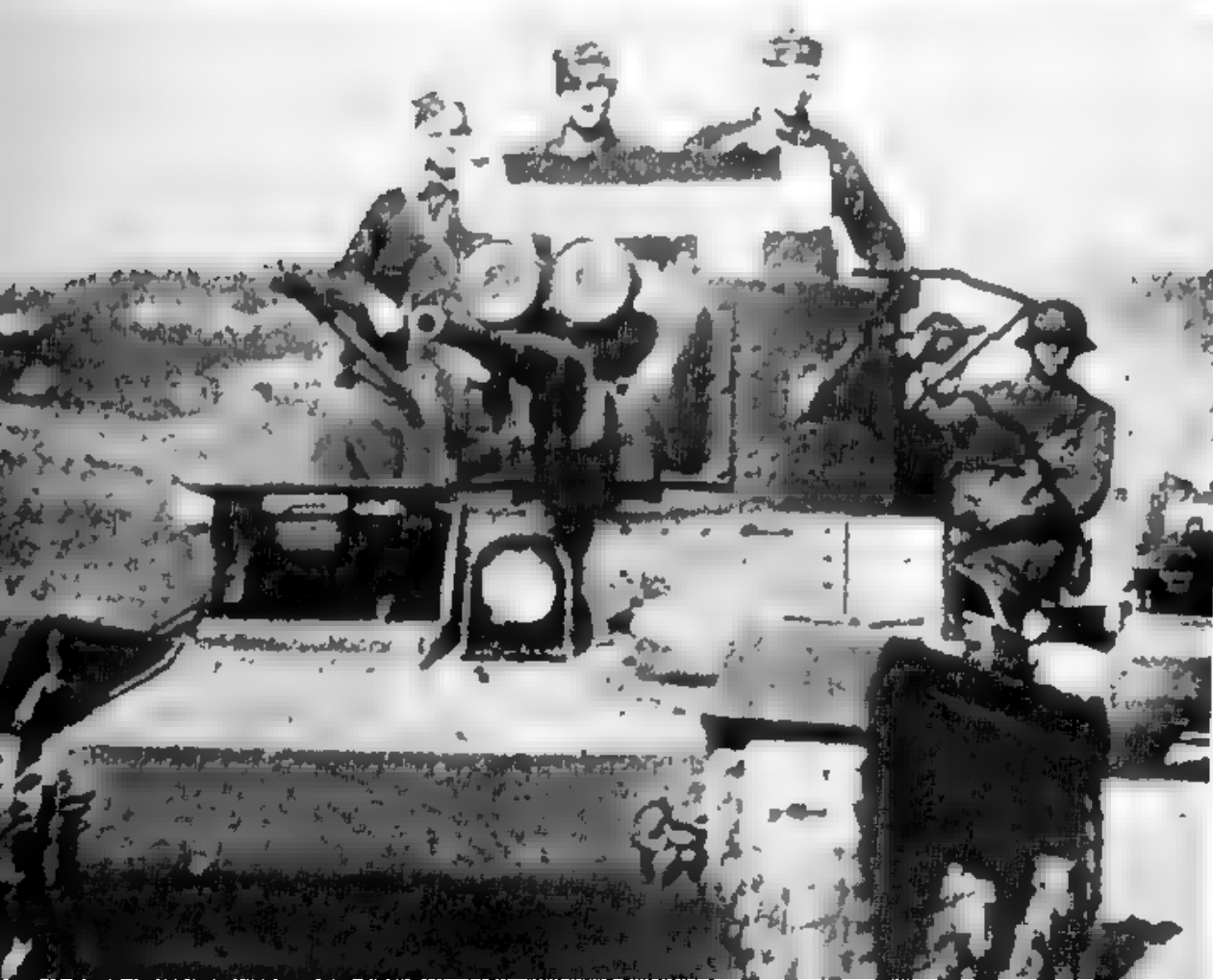




## 20



**Above:** The 100mm gun on the T-30. At the front of the tank is the main gun. The 100mm gun is mounted on the front of the tank. The 100mm gun is mounted on the front of the tank.



**Left:** The 100mm gun on the T-30. The 100mm gun is mounted on the front of the tank. The 100mm gun is mounted on the front of the tank. The 100mm gun is mounted on the front of the tank.

**Right:** A new T 304 index

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**Below:** A pair of 28 medium  
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orange the width 332 1/2  
is marked by a solid white  
rectangle. The head is  
marked with a pattern of  
dark grey and orange  
streaks and



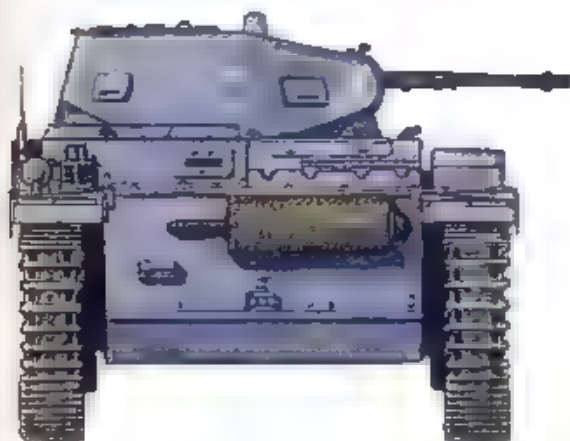




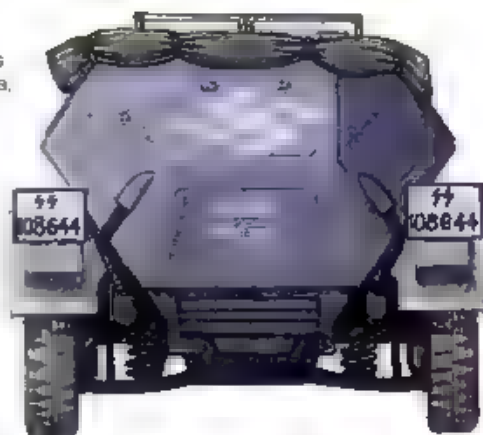
**Above:** A T-34 tank of the Soviet army in Berlin, 1945. The soldiers on top of the tank are celebrating the end of the war. The tank is moving through a city street, and a large crowd of people is gathered on the sidewalk. The background shows multi-story buildings and trees.



**Left:** A T-34 tank of the Soviet army in Berlin, 1945. The tank is moving through a city street, and a large crowd of people is gathered on the sidewalk. The background shows multi-story buildings and trees.

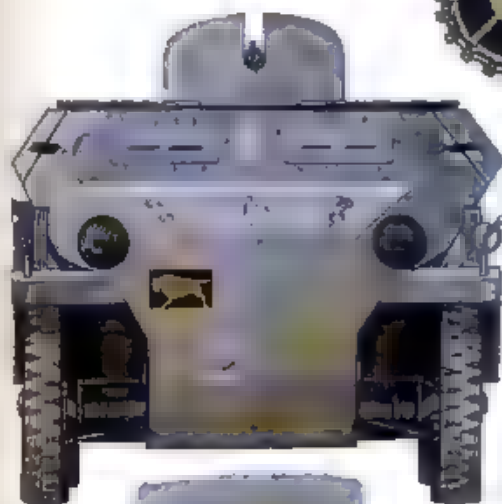
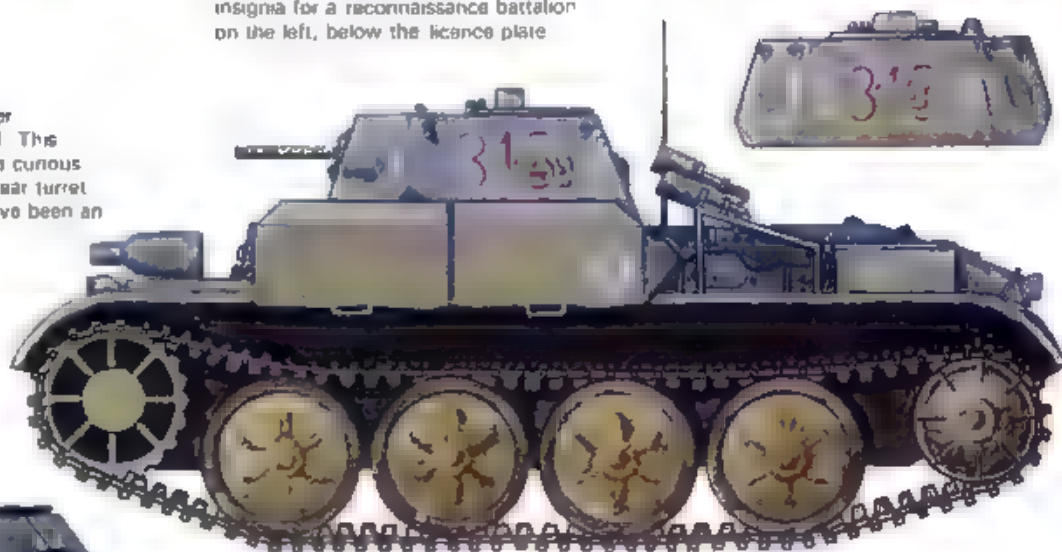


**Left:** Pz Kpfw II Ausf F, 11 Panzer Division, Operation Barbarossa summer 1941. This Pz Kpfw II carries not only the official divisional insignia, unofficial 'ghost rider' divisional insignia as well. The circular insignia on the turret may have been used to indicate the 2nd platoon or 2nd company.



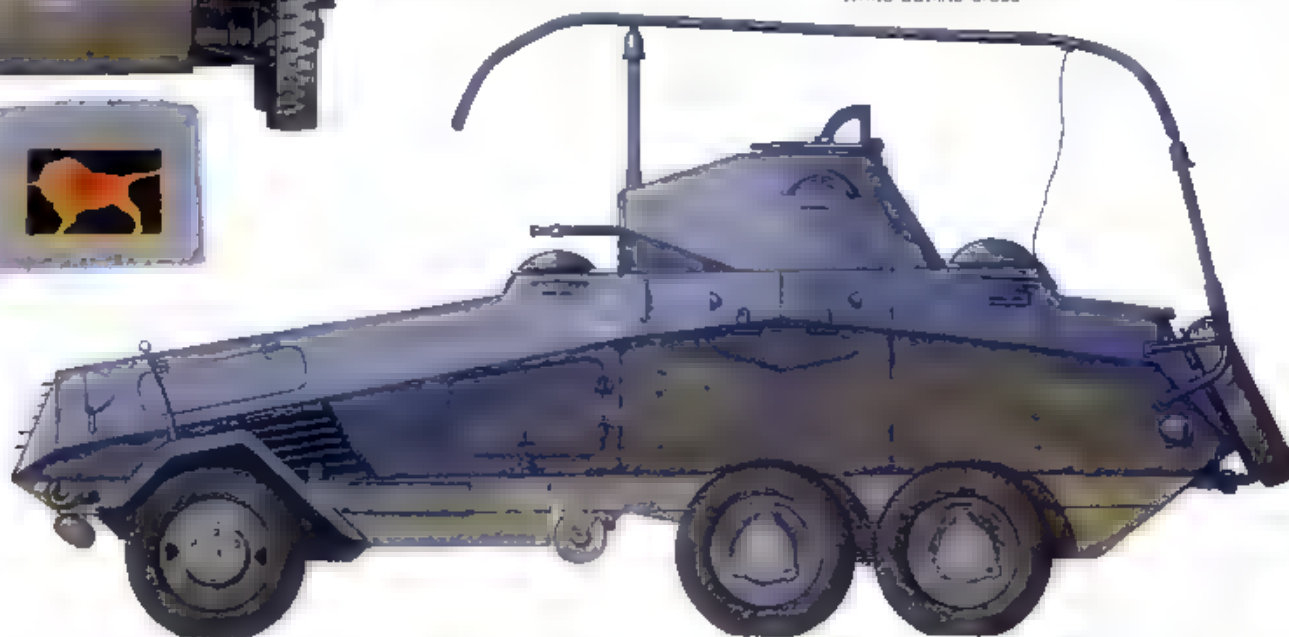
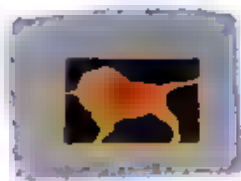
**Right:** Sd Kfz 222, 5. SS Panzer Regiment, Aufklärungs Abteilung, Don Front, 1941. This vehicle has a swastika painted prominently on the rear deck to serve as an air identity marking. A flag was more commonly used for this purpose. The regimental insignia is carried on the right mudguard and the tactical insignia for a reconnaissance battalion on the left, below the licence plate.

**Right:** Flammpanzer II, Panzer Abteilung 100(F), winter 1941. The flamethrower battalion used a curious white insignia carried at the rear turret corners, which appears to have been an attempt at a stylized spade.



**Left:** Sd Kfz 253, 191 Sturmgeschütz Abteilung, summer 1942. This half-track carries the StuG battalion bison insignia on the front plate, opposite the tactical insignia for an assault gun battalion. The white II probably refers to the battery or company number.

**Below:** Sd Kfz 231 Nachrichtstruppen NA 82, 6. Panzer Division, Nikijä, USSR, winter 1941. This reconnaissance radio vehicle has the divisional insignia on the side of the engine armour along with the name 'Peterele'. The national insignia is the usual hollow white outline cross.





**Left:** During the defence of Moscow in 1941 some vehicles and artillery pieces were camouflaged in this intricate pattern of whitewash over the base dark green finish. Some green bands were left but were cross-hatched with white stripes. These T-34s made 1941's probably belonged to 11th Tank Brigade (Sovfoto)

unpainted Soviet tanks being rushed from the factories is attributable to journalistic licence. By 1942, when most of these reports were filed, the Soviet factories had been evacuated to the Urals. The only case where this might have happened to a limited extent was during the battle at Stalingrad in autumn 1942, when the STZ tank factory was still located within the city.

#### National Insignia

The traditional insignia of Soviet Russia has been the red star. Although this was used on parade tanks or for public display before the war, it was not used regularly as a means of national identification. It was applied occasionally by crews on an unofficial basis during the course of the war, and its use increased dramatically in the final year of the war. However, even then it was far from commonplace. Occasionally, the hammer and sickle emblem was used, but this was more for decorative purposes than as a proclamation of national identity.

The most common form of national identity insignia used by the Soviet Army was, in fact, air identity markings. The usual national identity markings are a hindrance; if they are large and serve their function they tend to make excellent aiming points for enemy anti-tank gunners, but if they are small and inconspicuous they do not fulfil their purpose of identifying the tank to friend or foe. In any event, ground troops soon come to recognize friendly and enemy tanks by their shape and sound. The real problem comes from aircraft, since aircrews are notorious in nearly all armies for not being able to distinguish between friendly and hostile tank columns. In 1934, the Soviet Army began using a large white cross painted on the roof of tank turrets to serve as a means of identifying them as friendly vehicles. This marking was used regularly in summer wargames. There were other attempts to use large letters so that observation aircraft could distinguish one brigade from another. During the occupation of the Baltic states in 1940, Soviet tanks used the white cross insignia on their roofs, and even as late as 1941 when the Germans invaded Russia some of these tanks still had this marking.

As the war continued, the Soviet Army adopted other

similar insignia. These air identity markings were changed frequently to prevent the Germans from recognizing them and trying to confuse Soviet Shurmovik (ground-attack) aircraft by painting their own panzers with similar insignia. Usually, such a marking would be adopted immediately before a major offensive and applied at the last minute to maintain security. Very few of these insignia have been identified positively since aerial views of Soviet tanks are so uncommon. Some insignia known to have been used were a white triangle with red star, a white triangle with yellow circle, a white band extending from side to side of the turret (1943), a red band running over the vehicle from front to rear (Hungary, 1944), and a white circle (Baltic campaign, 1944, and Yugoslavia, 1945). The best known of these markings was the white cross and white turret band used at the time of the Berlin operation in 1945. In early 1945, during joint Allied discussions, the United States suggested that the Soviet Union, Britain and the US should agree to a set of tank markings to reduce the risk of inadvertent calamities when both sides met in Germany and to prevent American aircraft from attacking Soviet columns, as had been happening in Yugoslavia. The Soviets suggested that Soviet tanks should have a single white band painted around the tank turret, and the United States and Britain should use two white bands. The US backed down, preferring to continue to use the fluorescent red and yellow air identity panels that were already in use with US, British, French and other Allied forces. Nevertheless, the committee agreed that, as of April 1945, the air recognition sign for Soviet vehicles would be a white cross on the turret roof and a white band around the turret sides. This was put into effect, though its application was not universal. However, in April, the Wehrmacht demonstrated that they understood the system, and American fighter-bomber pilots complained that they had spotted German armoured formations painted with Soviet air identification bands. As a result, the Soviets agreed that, as of 1 May, they would switch from a turret cross to a white triangle. However, the war ended before this was put into widespread use, and the only evidence of its application comes from a few photographs of vehicles in Prague after the May ceasefire.

**Right:** A platoon of disabled or "straggler" tanks show another variation of the American tactical insignia. Usually the tank units have the numbers 1-10 on the turret, presumably for the individual vehicles in a platoon. 3 of the stragglers on the right which 24 of the stragglers indicate the capture and capture of the respective "stragglers".

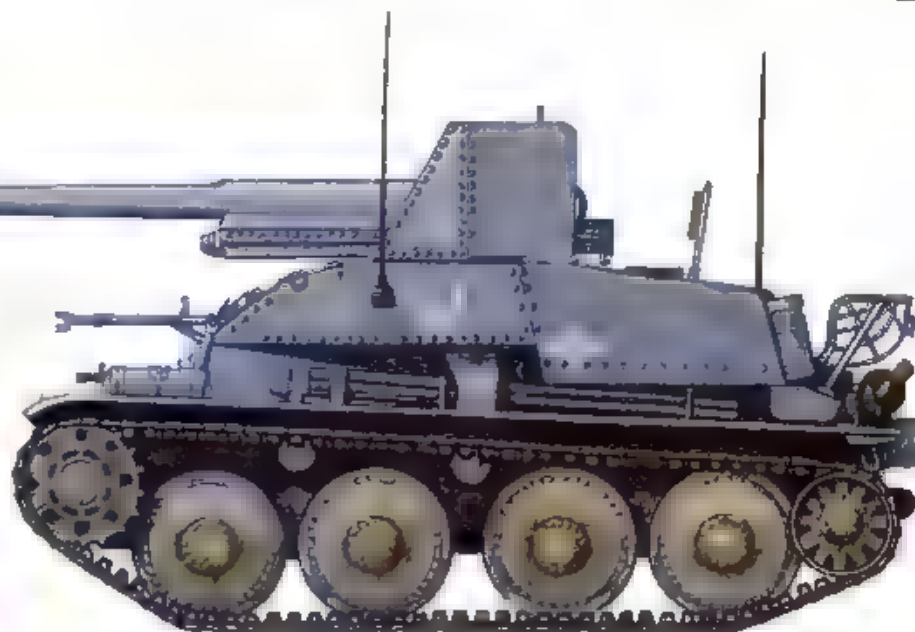
**Centre right:** Soviet units or divisions used captured American tanks such as the M4 Sherman, Pz Kpfw IV Ausf. G and with a common Soviet tank and Soviet tank. It is from the German in George Bui.

**Bottom right:** Some Soviet tanks at the end of the war. The tanks to distinguish them from the tanks such as the M4 Sherman, Pz Kpfw IV Ausf. G and the M4 Sherman. The tanks are camouflaged in order to be kept in the hands of the German in George Bui.

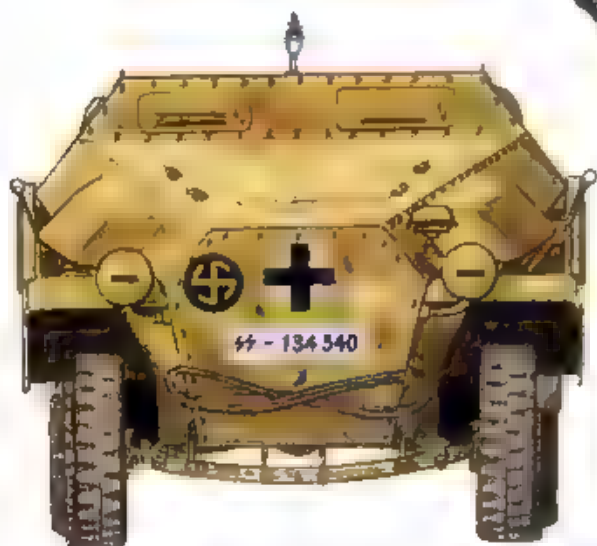




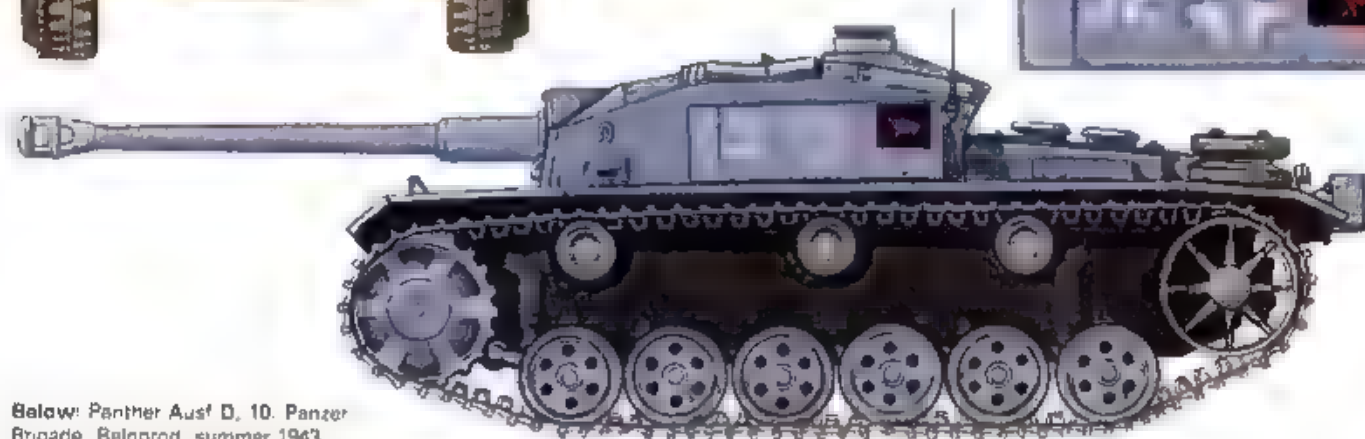
Right: Pz Jag 38lt. Sd Kfz 139. Pz Jag Abteilung 38, 1. Panzer Division, Karmanova, USSR, summer 1942. This Marder tank destroyer carries the yellow divisional insignia, in addition to the tactical sign of a self-propelled anti-tank gun. The 1 next to the tactical sign probably refers to the battery number.



Left: Sd Kfz 251 Ausf. C. 5. SS Panzer Regiment Wiking, autumn 1943. This half-track carries the regimental insignia (left) and, opposite it, the tactical insignia identifying the vehicle as belonging to the HQ of a tank battalion. These insignia would be repeated on the rear.

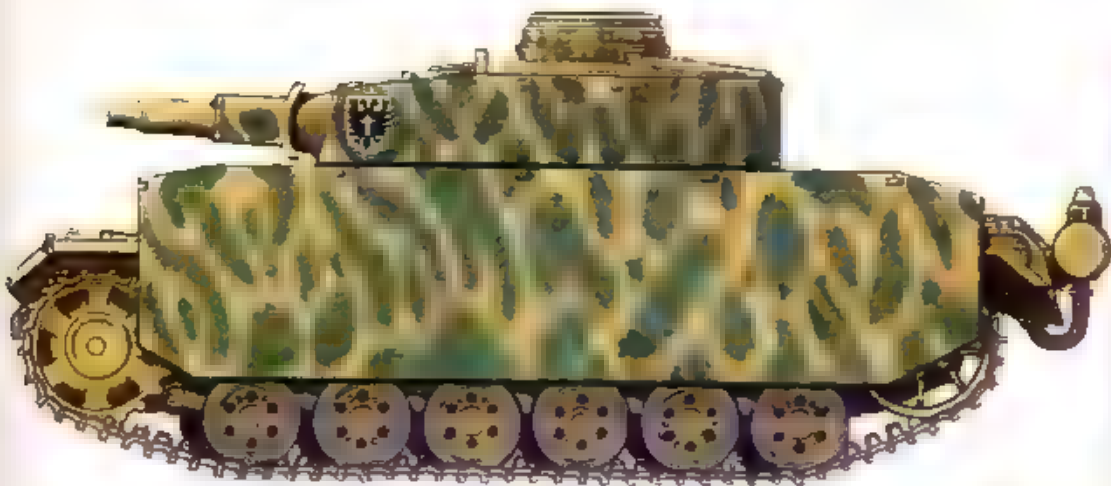


Below: StuG III Ausf. F, StuG Abteilung 203, Rostov on Don, summer 1942. The insignia of StuG battalions frequently was simplified from the full regimental crest, such as this elephant insignia used by StuG Abt 203.

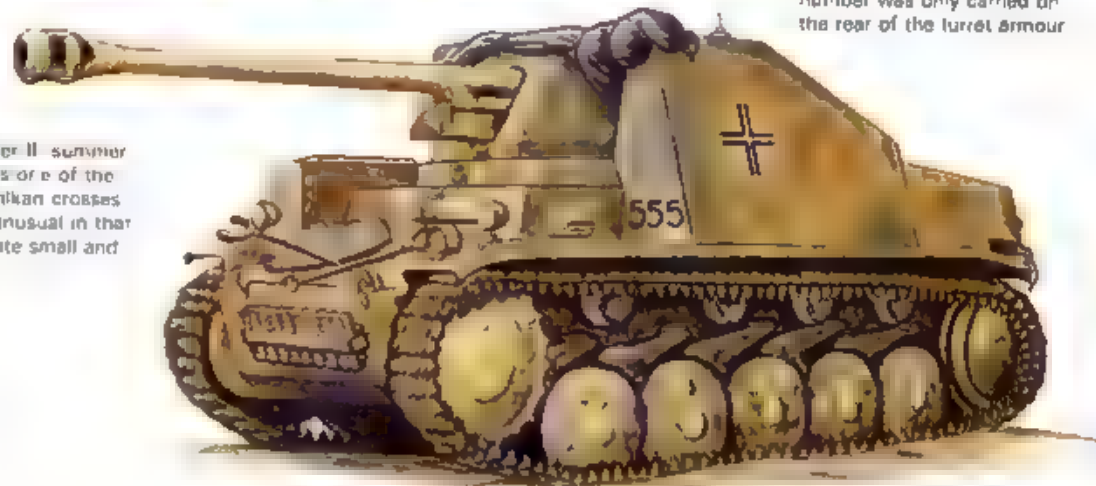


Below: Panther Ausf. D, 10. Panzer Brigade, Belgorod, summer 1943. Panther units seldom used unit insignia, but this is a colourful exception. The tiger's head insignia was also repeated on the upper left hand corner of the turret rear.

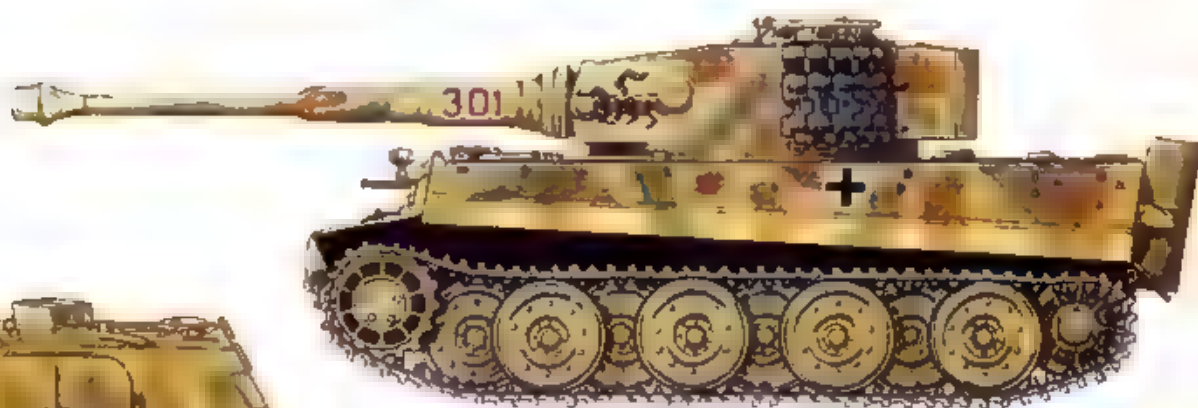




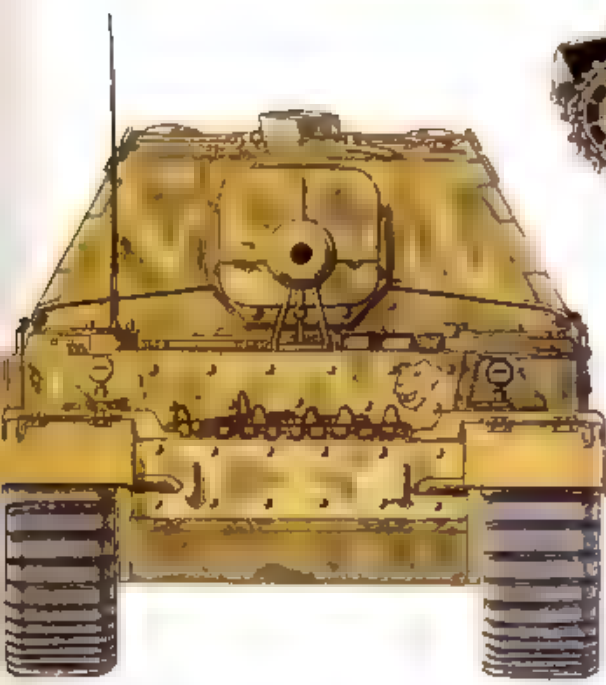
Left: Pz Kpfw II, Ausf. N, Panzer Regiment 3, 2. Panzer Division, Kursk, 1943. Besides the usual white trident insignia, tanks of this unit had their own regimental insignia carried on the turret sides. The three-digit tactical number was only carried on the rear of the turret armour.



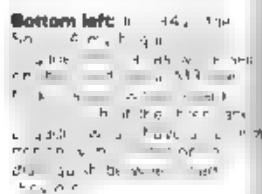
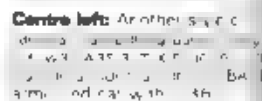
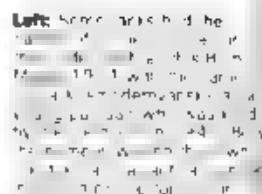
Right: StuG III, summer 1943. This vehicle carries one of the less common styles of Balkan crosses used in 1943. It is also unusual in that its tactical number is quite small and inconspicuous.



Above: Tiger I, sPzAbt 505, eastern Poland, summer 1944. Curiously, some Tigers of this battalion had a patch of Zimmerit stripped clean on which was painted the battalion insignia. Another oddity was the use of the gun tube for carrying the battalion insignia.



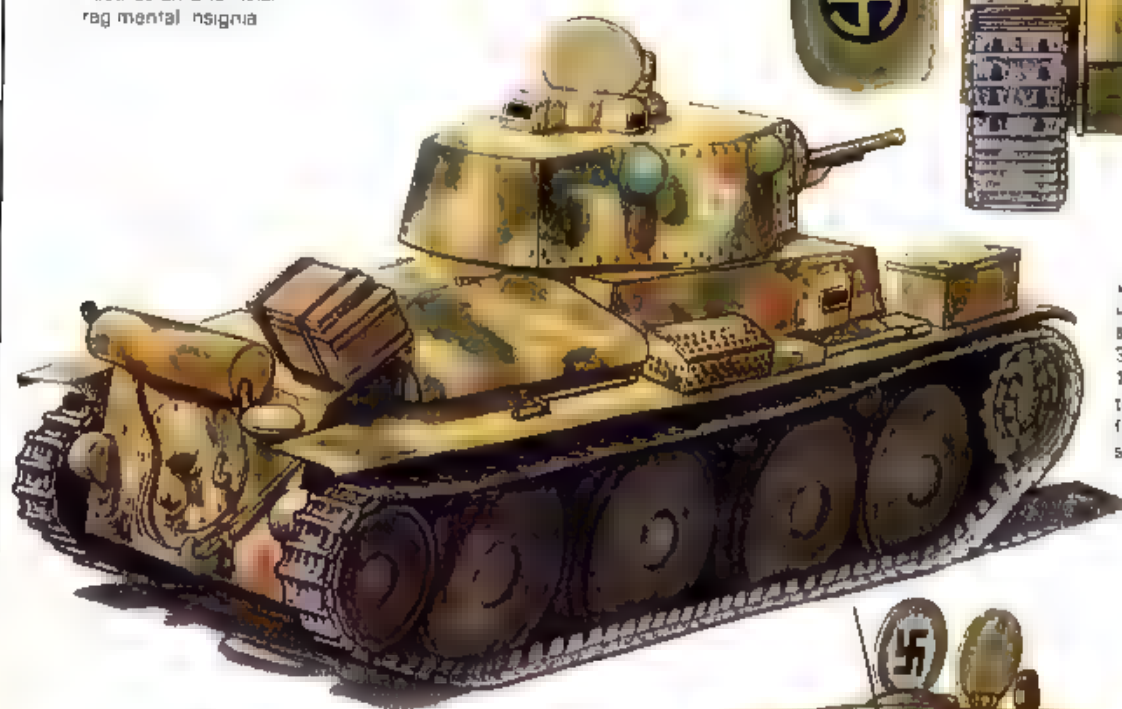
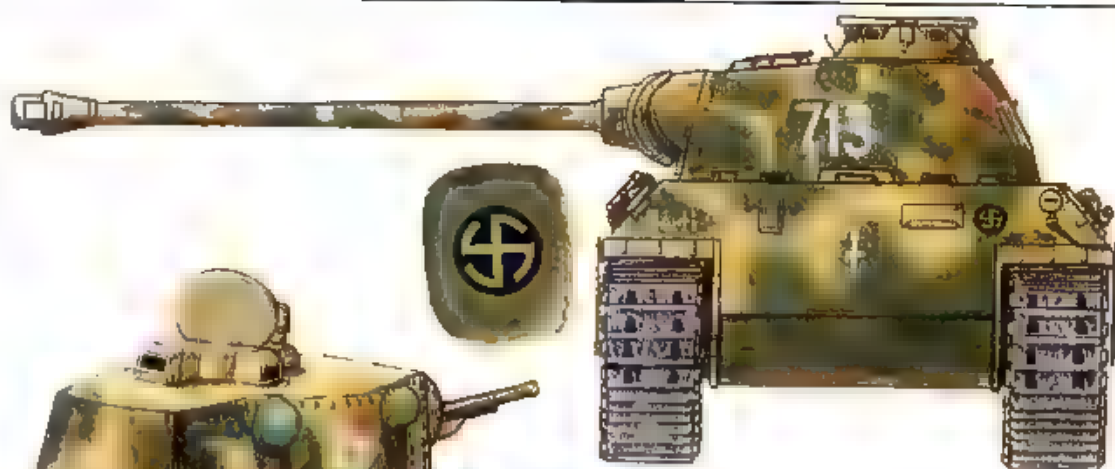
Left: Ferdinand, Pz Jagd Regiment 656, Nikopol bridgehead, Donets River front, November 1943. Some vehicles of this regiment appear to have adopted a tiger's head insignia after the battle at Kursk; this was carried on the glacis plate.





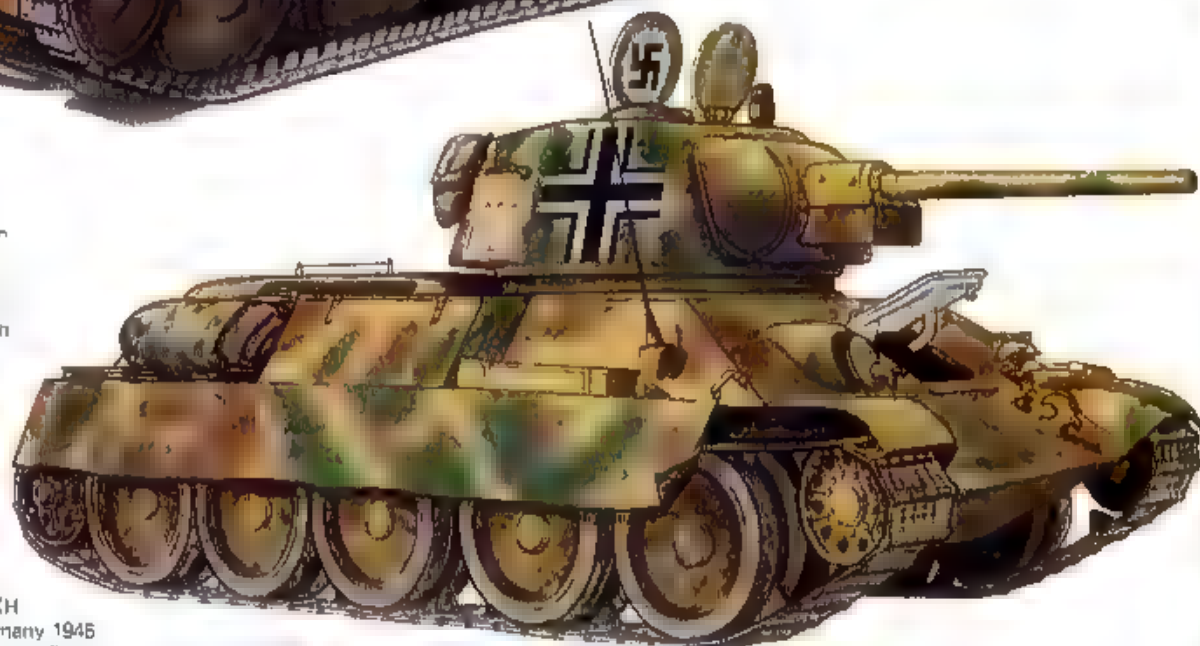


**Right:** Panther Ausf A, 5 SS Panzer Regiment, summer 1944. This tank, commanded by SS-Unterscharführer Manner, carries the name 'Bert', the division's insignia and a white sword emblem that appears to have been used as an unofficial regimental insignia.

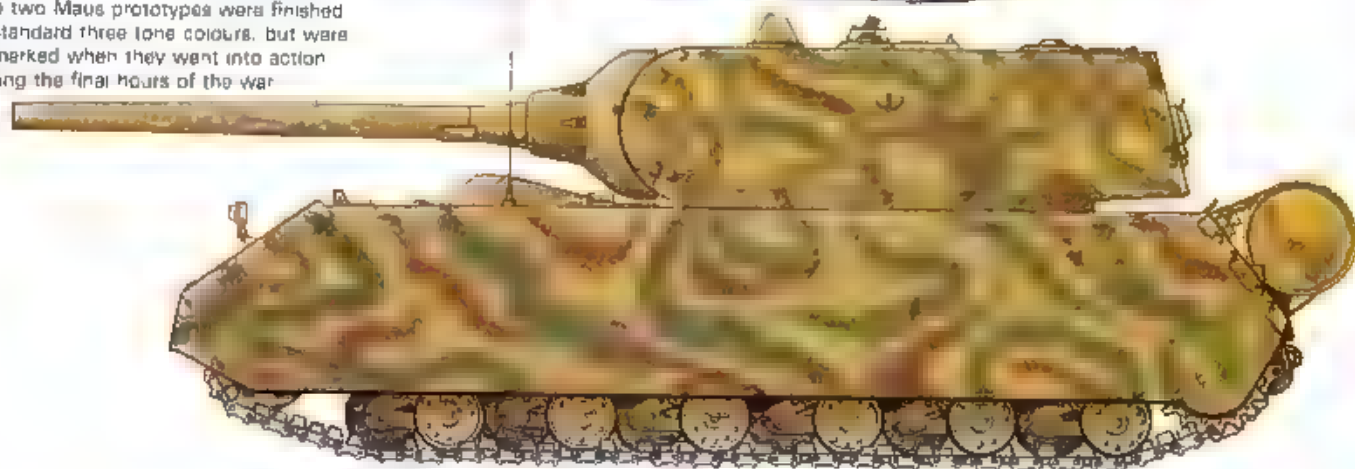


**Left:** Pz Kpfw 38(t), Ausf E, unidentified German armoured train, summer 1944. The obsolete Pz Kpfw 38(t) remained in service as late as 1944 in anti-partisan units attached to armoured trains. Here it is finished in a standard three-colour scheme.

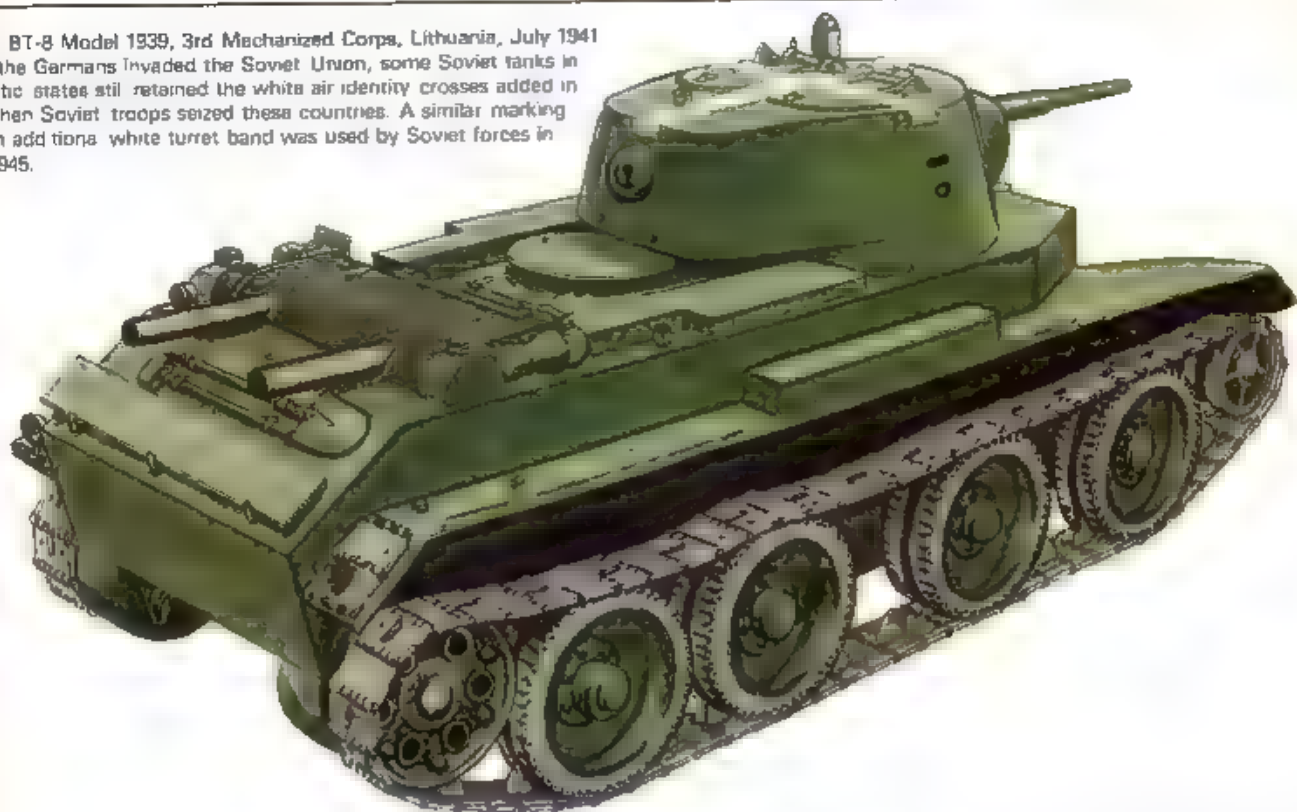
**Right:** Pz Kpfw T 34(r), Romania, 1944. When captured Soviet tanks were employed by German units, they were generally heavily marked to prevent them from being misidentified as hostile by their own troops. This T 34 has also had side skirts added to give it a more German look. The turret tactical number was repeated on the turret rear.



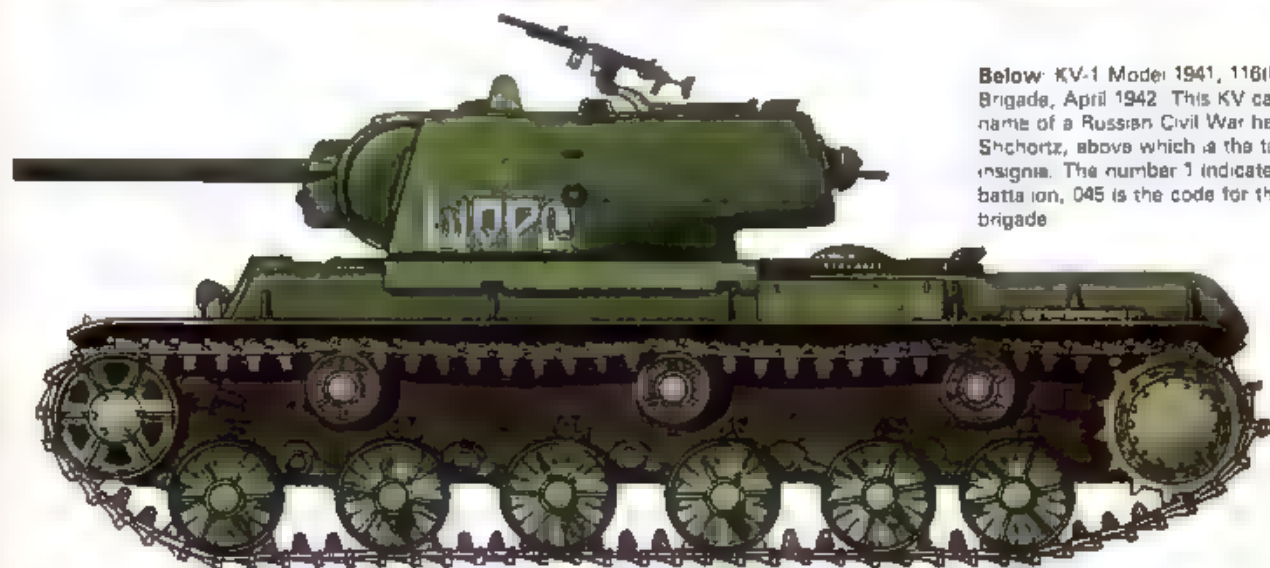
**Below:** Pz Kpfw Maus, OKH headquarters, Zossen, Germany, 1945. The two Maus prototypes were finished in standard three-tone colours, but were unmarked when they went into action during the final hours of the war.



**Below:** BT-8 Model 1939, 3rd Mechanized Corps, Lithuania, July 1941  
 When the Germans invaded the Soviet Union, some Soviet tanks in the Baltic states still retained the white air identity crosses added in 1940 when Soviet troops seized these countries. A similar marking with an additional white turret band was used by Soviet forces in April 1945.



**Below:** KV-1 Model 1940 (applied) summer 1941. This KV heavy tank is marked gaudily with the slogan 'Bei fashistekuyu gadinu' ('Crush the fascist vipers').



**Below:** KV-1 Model 1941, 116th Tank Brigade, April 1942. This KV carries the name of a Russian Civil War hero, Shchortz, above which is the tactical insignia. The number 1 indicates 1st battalion, 045 is the code for the brigade.



**Left:** Although application of pattern-painted camouflage during the summer months was not common on Soviet vehicles, whitewash camouflage was of greater use during the winter. There was seldom any care taken with these whitewash applications, but in the case of this BA-10 the finish has been applied in a distinct pattern.

**Below left:** Soviet tanks and armoured vehicles were not uniformly camouflaged with pattern-painted disruptive schemes, but such camouflage was common on armoured cars due to the vulnerability of their sides. This well-known BA-10 camouflage is dark green with field-drab or light green swaths.



#### Tactical Insignia

Starting in 1931, Soviet tanks began to use a complicated set of red, white and black bands to distinguish battalions and companies. The top band indicated the battalion, and the bottom, dotted band indicated the company. The colour sequence was red (1st battalion or company), white (2nd battalion or company) and black (3rd battalion or company). Platoon and vehicle were indicated by a number in a

small square which was painted on the hull side. The battalion and company bands were painted on the upper edge of the turret. This system fell into disuse from 1938 onwards, and it was no longer in use by the outbreak of war, even though some older tanks could still be seen in these markings well into 1941 and 1942. During the opening phases of the war, the Soviet Army's vehicles were nearly totally devoid of markings. This was due in no small measure to the confusion surrounding the



formation of the new mechanized corps in 1940-41. Gradually, a new style of marking began to develop that was in many respects similar to the German tactical map symbols.

Vehicles began to have geometric shapes painted on their turrets, with numbers carried within the marking. It is not known whether there was any system to these shapes, as was the case in the British Army, but a range of shapes have been observed in photographs of the 1941-42 period: squares, rectangles, diamonds, triangles and circles. These may have been part of an abortive marking scheme for the new tank corps of 1942. In any event, the system seems to have disappeared by the time of the fighting in summer 1943, leaving only one common survivor, the diamond tank marking. The diamond was an obvious choice of marking, since it was the Soviet Army map symbol for a tank. Use of this marking began in 1942, and the marking was usually applied to the turret, about 400mm high in white or yellow paint. The diamond contained two sets of numbers stacked one above the other. The initial pattern appears to have been that the brigade number appeared on the bottom and the battalion number on top. Brigades at this stage in the war were usually given coded numbers, so for a tank of the 1st Battalion, 116th Tank Brigade, the number appeared as 1/045. 045 was the brigade code. This symbol remained in use to the end of the war, but the numbering system within it varied enormously. In some cases the brigade number was not coded and would be carried on the top rather than the bottom. Therefore, the symbol of the 2nd Company, 3rd Battalion, 44th Tank Brigade appeared as 44/32. Sometimes the battalions were indicated by a letter rather than a number. The usual sequence for this

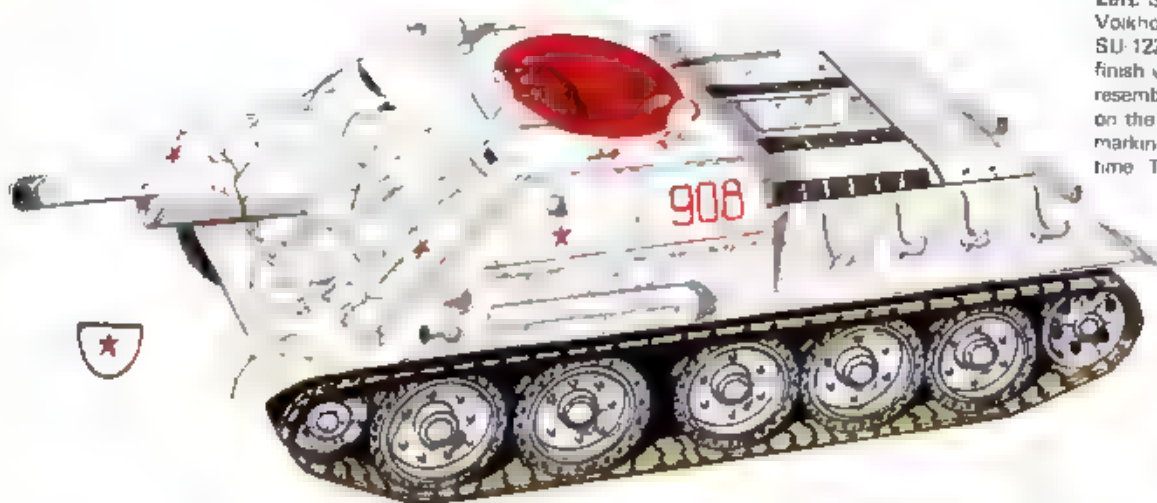
(in Cyrillic) was A, B, V. When the lettering system was used, the battalion number usually appeared at the top of the diamond. Later in the war, when the Red Army began to use brigade and corps insignia, there was no pressing need for the diamond system to carry information on the brigade, so the numbering often referred instead to battalion, company and platoon. In short, there was very little consistency in the use of the symbol and it is frequently impossible to decipher one from the other without further information. The consequent confusion was probably intentional, since it made it very difficult for the Germans to gather intelligence data from Russian tank wrecks. This system was the most common form of tactical insignia used by Soviet tanks, but its use was far from universal. Besides the diamond, late in the war other symbols were also employed, especially the square. This contained the same sort of numbered information, but was usually divided into three or four segments with up to four sets of numbers. This system appears to have been most common on self-propelled guns, but it was seen on tanks, armoured cars and other vehicles as well. The significance of the use of a square rather than a diamond is not known. A number of tactical insignia are shown in the illustrations and photographs here.

New geometric insignia designs began to appear on Soviet tanks beginning late in 1942. These sometimes resembled the tactical insignia mentioned above, but were in fact a new type of marking, the corps insignia, and their evolution is discussed below. It is sometimes very difficult to distinguish between these two categories, since some units, such as the 23rd Tank Corps, used the traditional diamond insignia for their brigades in the same way as the tactical markings described above.



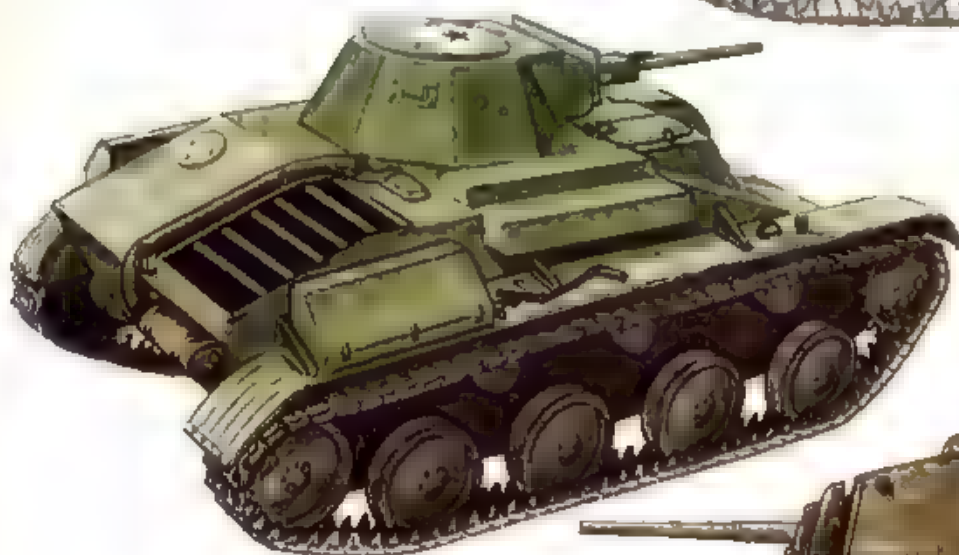
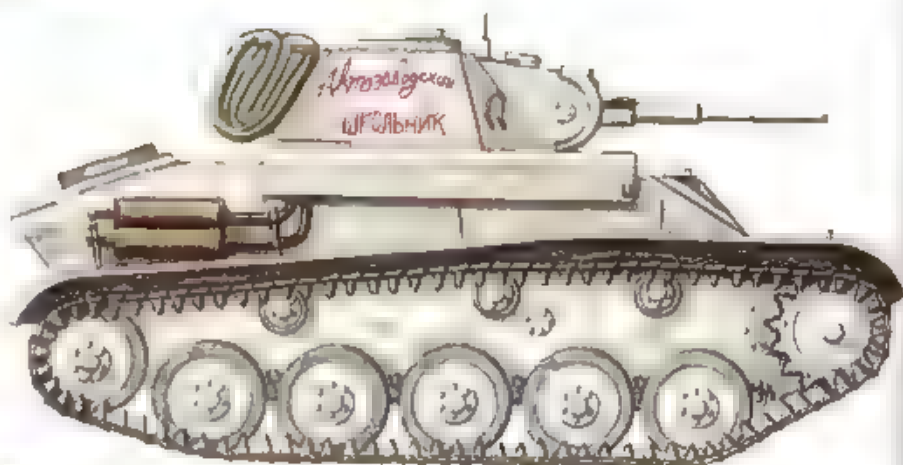
Right: A diamond-shaped tactical insignia on the turret of a Soviet tank in the form of the letter 'В' (V) and the number '1' below it.





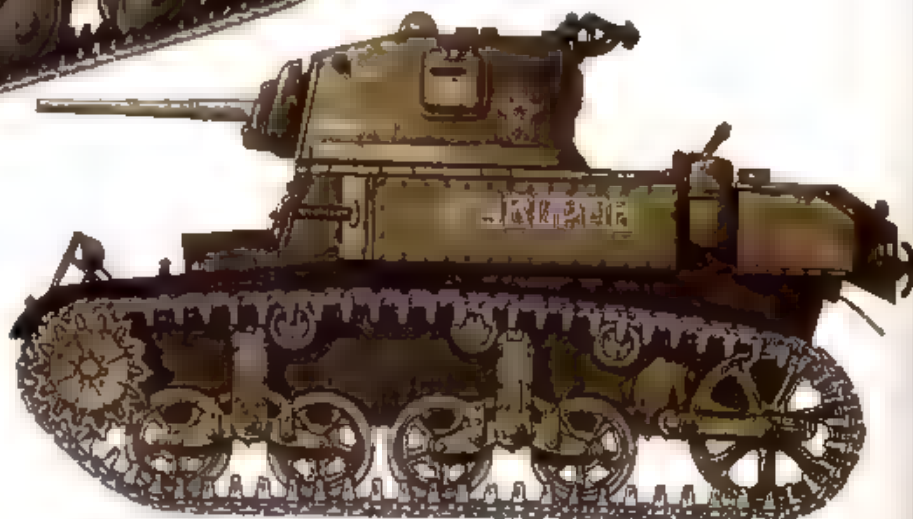
Left: SU-122 SP Artillery Regiment Volkhov Front, winter 1942-43. This SU-122 has a very elaborate winter finish with dark green details added to resemble tree branches. The red circle on the roof was used as an air identity marking in the Leningrad region at the time. The tactical number is 908.

Right: T-70 light tank, unidentified Soviet tank brigade, winter 1942-43. This T-70 along with a BA-64 armoured car were purchased by the students of the school attached to the GAZ motor factory in Gorki, hence the name 'Avtozavodsk' (Shkolnik - 'Auto Factory Student').

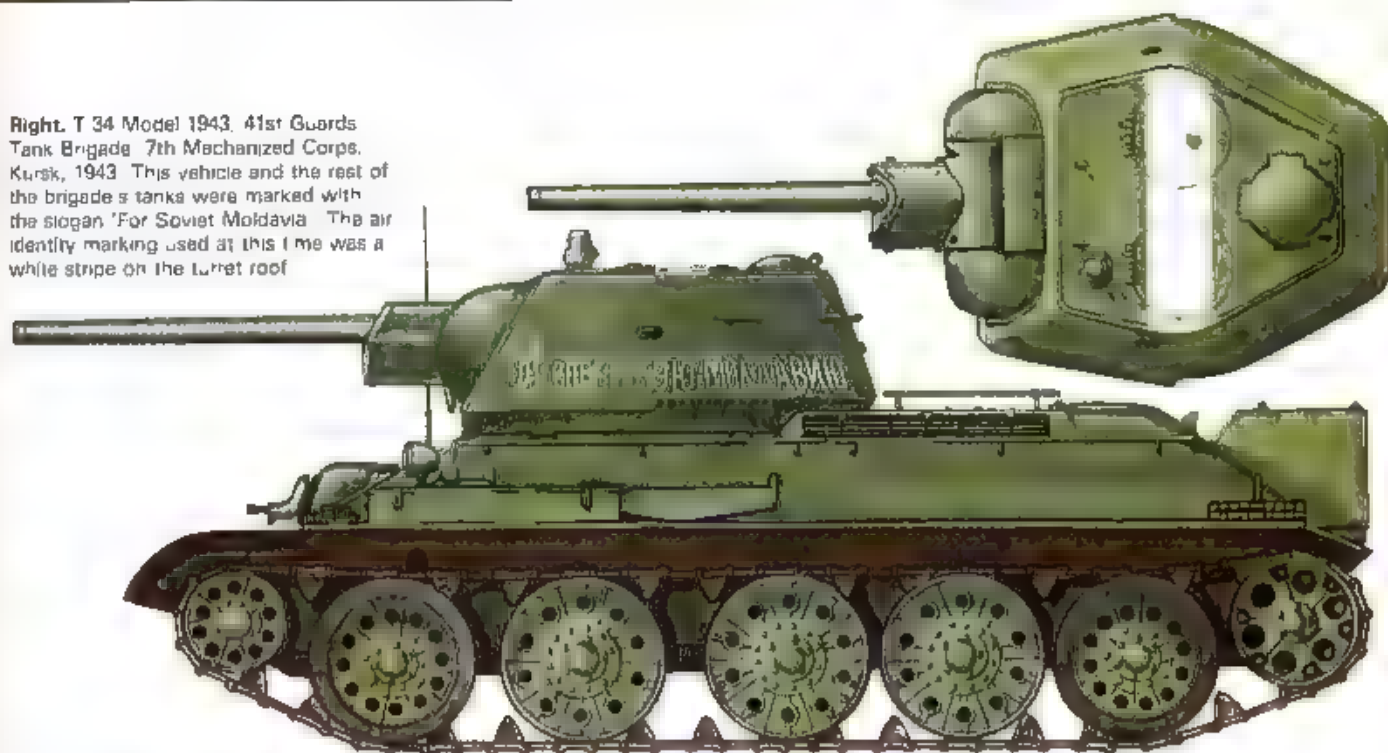


Left: T-60 light tank, unidentified Soviet tank brigade, summer 1943. This T-60 clearly displays one of the many identity markings used during the war on many local fronts. These were temporary markings, and usually were applied immediately before a major offensive to prevent Soviet Shurmoviki from attacking friendly tanks.

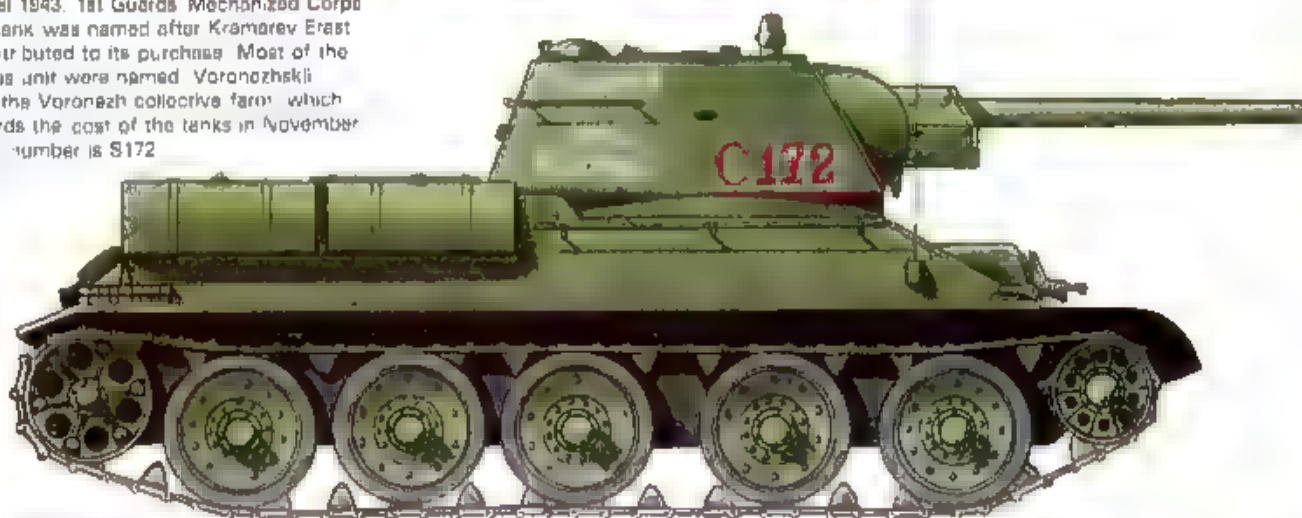
Right: M3A1 (diesel), unidentified Soviet tank brigade, summer 1943. This M3A1 is marked colourfully with a red star, the name of a Napoleonic war general (Suvorov) on the hull side and the slogan 'Annihilate the Fascists' on the turret side.



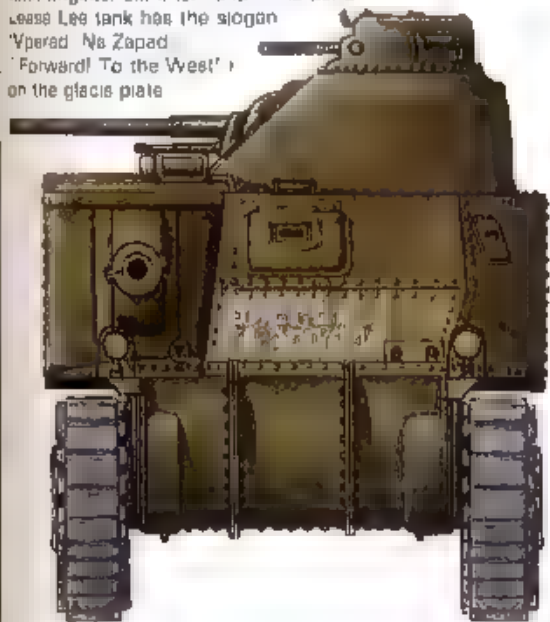
Right: T 34 Model 1943, 41st Guards Tank Brigade 7th Mechanized Corps, Kursk, 1943. This vehicle and the rest of the brigade's tanks were marked with the slogan 'For Soviet Moldavia'. The air identity marking used at this time was a white stripe on the turret roof.



Right: T 34 Model 1943, 1st Guards Mechanized Corps April 1943. This tank was named after Kramarev Erast Fedorov who contributed to its purchase. Most of the other tanks of this unit were named 'Voronezhskii Kolkhoznik' after the Voronezh collective farm, which contributed towards the cost of the tanks in November 1942. The tactical number is S172.



Below: M3A5, unidentified Soviet tank brigade, summer 1943. This Lend Lease tank has the slogan 'Vpered! Na Zapad' ('Forward! To the West') on the glacis plate.



Below: BA 64B, unidentified Soviet armoured unit, winter 1943-44. This armoured car also carries the slogan 'Vpered na Zapad' ('Forward to the West') and a tactical insignia behind the turret.





**Top left:** One of the most popular forms of slogan was a commemorative slogan which referred to the collective or youth groups that contributed money to the construction of a tank. In the case of a whitewashed T-34 Model 1943 has had the name Khubarovsk Komsomolov's added in red on the turret. This refers to the Young Communist League of the city of Khubarovsk.

**Below left:** These KV Model 1943s at one time were perhaps insisted uniformly in whitewash, but by the time this photograph was taken in the winter of 1942-43 the whitewash had been worn away on the engine deck, exposing the original dark green finish. On the turret side and rear are the designational numbers in red on a black background.

**Top right:** Some of the new brigade insignia that began to appear in 1942 were extremely complex, as is evident on this T-60. One of the other brigades this corps used a similar marking, but with an additional emblem above the '3'.

**Centre right:** This is believed to be a T-34 Model 1943 of the 22nd Tank Brigade, 5th Tank Corps. The number in the diamond is 22-14, the first half indicating brigade, the second indicating vehicle number. There is no stripe at the turret, an indication on the turret, and possibly in the turret, of a Brigade, which was the first of three brigades in the corps. The two stripes between the '4' and '14' indicate the 2nd battalion of the brigade.

**Bottom right:** A pair of BA-10s, a pair of a reconnaissance car, are shown in the foreground. They were built in 1943. They both have the designation '476' on the turret. The car on the right is a Soviet-built car, and the car on the left is a Soviet-built car.





# German Unit Insignia

## Panzer Divisions



## SS Panzer Divisions



## Sturmgeschütz Units



**Right:** A column of T 34 Model 1943 advance in the forest. The tank in the foreground is the leading vehicle. The numbers 26 and 4 are a numbering style that is commonplace during the 1942-43 period, with the first two digits often being coded for the tank's unit.

**Below:** T 34 Model 1942s and Model 1943s are presented to the crews of the Estonian 4F tank polk in May 1943. The tanks are decorated with the slogan 'For Soviet Estonia' which is painted in Russian on the side. Below: This was one of the tanks that were captured and formed during the



# GERMAN UNIT INSIGNIA

## German Panzer Divisions

1.	18.	Pz Div
2.	19.	H. Pz Div
3.	20.	Pz Div
4.	21.	Pz Div
5.	22.	Pz Div
6.	23.	Pz Div
7.	24.	Pz Div
8.	25.	Pz Div
9.	26.	Pz Div
10.	27.	Pz Div
11.	28.	Pz Div
12.	29.	Pz Div
13.	30.	Pz Div
14.	31.	Pz Div
15.	32.	Pz Div
16.	33.	Pz Div
17.	34.	Pz Div

35.	36.	Pz Div
37.	37.	Pz Div
38.	38.	Pz Div
39.	39.	Pz Div
40.	40.	Pz Div
41.	41.	Pz Div
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75.	75.	Pz Div
76.	76.	Pz Div
77.	77.	Pz Div
78.	78.	Pz Div
79.	79.	Pz Div
80.	80.	Pz Div
81.	81.	Pz Div
82.	82.	Pz Div
83.	83.	Pz Div
84.	84.	Pz Div

85.	85.	Pz Div
86.	86.	Pz Div
87.	87.	Pz Div
88.	88.	Pz Div
89.	89.	Pz Div
90.	90.	Pz Div
91.	91.	Pz Div
92.	92.	Pz Div
93.	93.	Pz Div
94.	94.	Pz Div
95.	95.	Pz Div
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98.	98.	Pz Div
99.	99.	Pz Div
100.	100.	Pz Div









Top left: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

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Top right: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

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### Patriotic Slogans

Probably the best known style of tank marking used on Soviet combat vehicles during the Great Patriotic War was the patriotic marking. In fact, the term patriotic marking is something of a misnomer, as there were several categories of large slogans painted on Soviet vehicles during the war. In much the same way that heraldic vehicle symbols are rooted in German culture, the large painted slogans can be traced back to Russian culture in both the form of religious banners and, in Soviet Russia, to political banners. Originally, these slogans were probably prompted by the proselytizing of unit political commissars, but there can be little doubt that the practice eventually became more spontaneous. The early slogans are reminiscent of lurid Communist tracts, such as 'Stamp out the nests of the Fascist Vipers', and 'For Stalin!'. This style continued through the war in similar forms, such as 'For 20 Years of Soviet Rule in Uzbekistan', 'For the Soviet Ukraine', but it was

joined eventually by less dogmatically inspired sentiments such as 'Onward to Riga!', 'Onward to the West', 'To Berlin!', 'Kill the Fascist Occupiers'.

There were two other distinct categories of such markings: dedication slogans, and popular heroes' names. Indeed, dedication slogans were probably the most common form of large written marking to appear on Soviet tanks during the war. As in the US and British war bond drives, Soviet workers were encouraged (somewhat forcibly at times) to donate money for the purchase of weapons. During the war, 5.8 billion rubles was donated for the purchase of over 30,000 armoured vehicles amounting to about one third of total production. Usually, a small ceremony would be held in which representatives of the collective farm (Kolkhoz) or factory group would hand over the tanks to their new crews. Often these tanks were marked with the name of the collective, or with an appropriate slogan. Therefore, whole brigades would be named 'Moscow Kolkhoz', or



**Left:** Captured German equipment was usually of

which is still at German dark yellow finish, has a less than three-ed stars as well as the slogan 'Sm. Nemyotskii Okkupanta. Do not look part in the Melitopol (Soviet)

**Below:** An ISU 152 during the drive on Berlin in the spring of 1945 displays a regimental tactical number and the king's jubilee (65th anniversary of the Russian Revolution)



'Khabarovsk Young Communist League', for example. Sometimes these markings were applied only in chalk and would be removed before the troops entered combat, but in some cases the markings were more permanent. It is difficult to estimate how many Soviet tanks were marked in this fashion, but it was probably no more than about 1 per cent.

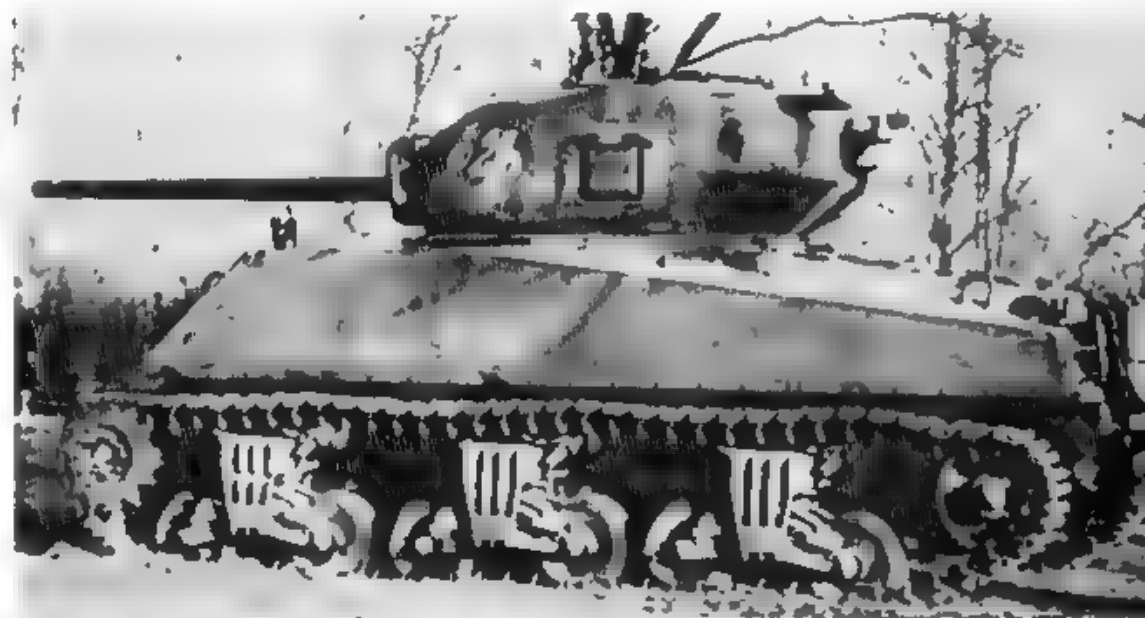
Another popular style of marking was the commemoration of some Russian hero by painting his name on tanks. Among the most popular names were the medieval princes Dmitri Donskoi and Aleksander Nevskii, both known for their wars against foreign invaders. Other popular names were Shchortz (a Civil War general), and generals from the Napoleonic period, such as Suvorov. On some occasions, the tanks would be named after soldiers who had been killed in the fighting.

During the war, particularly in the later phases, the Soviet government took great pains to justify its rule

over some of the more recalcitrant ethnic minorities of the USSR. The new acquisitions on the Baltic coast of special concern. As a result, some tanks appeared with slogans other than Russian. One Chuvash tank brigade carried the slogan 'For the Soviet Ukraine' in Ukrainian; the Estonian 45th Tallin Tank Regiment (45. uksik tanki polk) carried the slogan 'For Soviet Estonia' in both Russian and Estonian; and the 51st Tank Regiment (51. uksik tanki polk) was named after the legendary Estonian hero Lembitu, though in this case, written in Cyrillic. Latvian crews of the Mechanized Brigade named their T-34 Model 1943 'Latvian Rifles' in Latvian. One of the more common markings, for which, unfortunately, only a weak description exists, was the use of the Russian Orthodox cross on a T-34 brigade. This stemmed from the fact that the brigade was one of a number purchased as donations from the Orthodox Church through the aid of its precious religious vessels.

**Right:** An M4A2 76mm, inside Gdansk in August 1945. The tank is part of the 1st company. With each ten-tank company, the company commander would use Q, the first platoon 1-3, the second 4-6, the third 7-9, and the fourth 10-12. The tank is the first of the company.

**Below:** A Soviet armoured column moves into the town of Favosstrasso in Vienna April 1945. The M4A2 76mm is followed by two T-34s, which have the brigade's small swallow on the hull side and on the turret. No markings are visible on the turret.



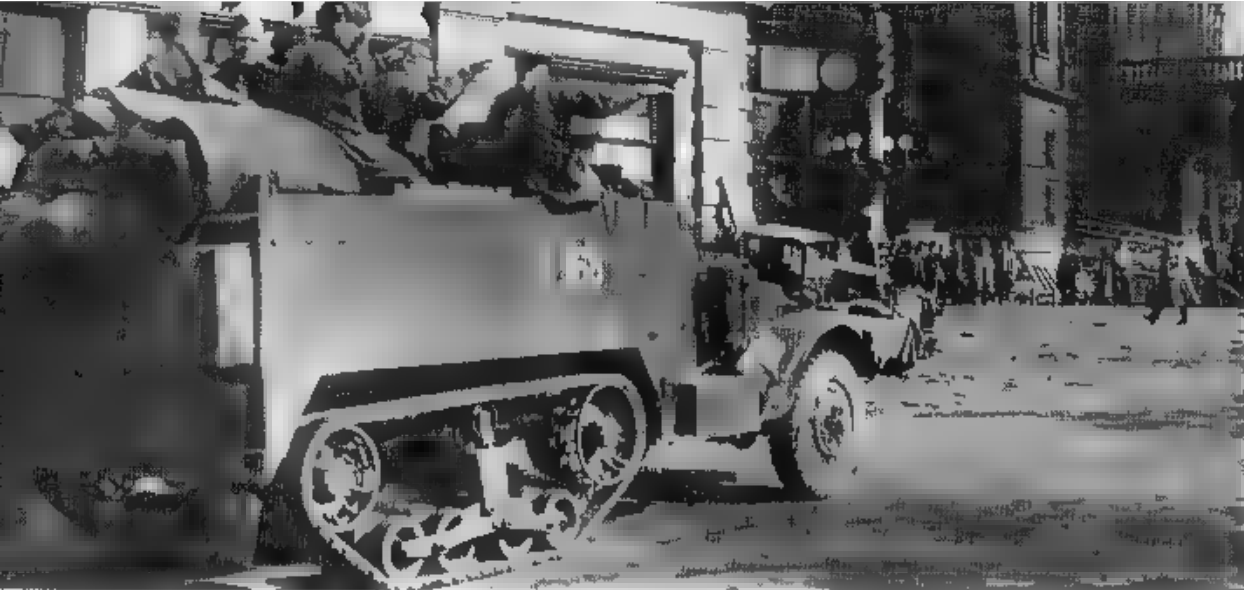




**Below:** A man and a woman  
sitting on the outside of a  
train car. The man is  
looking at the camera while  
the woman looks away. The  
train is moving through a  
snowy landscape. The man  
is wearing a dark coat and  
a hat. The woman is wearing  
a light-colored coat and a  
hat.

**Right:** A man and a woman  
sitting on the outside of a  
train car. The man is  
looking at the camera while  
the woman looks away. The  
train is moving through a  
snowy landscape. The man  
is wearing a dark coat and  
a hat. The woman is wearing  
a light-colored coat and a  
hat.





**Left:** An American tank destroyer division, equipped with the new M36 tank destroyer, was sent to the front lines in the summer of 1945. The M36 was a heavy tank destroyer, designed to destroy enemy tanks. It was a significant improvement over the M30 tank destroyer, which was a light tank destroyer. The M36 was a heavy tank destroyer, designed to destroy enemy tanks. It was a significant improvement over the M30 tank destroyer, which was a light tank destroyer.



**Centre left:** A Soviet tank destroyer division, equipped with the new M36 tank destroyer, was sent to the front lines in the summer of 1945. The M36 was a heavy tank destroyer, designed to destroy enemy tanks. It was a significant improvement over the M30 tank destroyer, which was a light tank destroyer. The M36 was a heavy tank destroyer, designed to destroy enemy tanks. It was a significant improvement over the M30 tank destroyer, which was a light tank destroyer.



**Bottom left:** A Soviet tank destroyer division, equipped with the new M36 tank destroyer, was sent to the front lines in the summer of 1945. The M36 was a heavy tank destroyer, designed to destroy enemy tanks. It was a significant improvement over the M30 tank destroyer, which was a light tank destroyer. The M36 was a heavy tank destroyer, designed to destroy enemy tanks. It was a significant improvement over the M30 tank destroyer, which was a light tank destroyer.

### Tactical Numbering

The Soviets did not use a standard system of tactical vehicle numbering during the Second World War. This was due in part to security concerns, but also because until 1943 not all Soviet tanks carried radios. The primary reason for the use of large tactical numbering on turrets is to facilitate inter-vehicle communication, but the absence of radios in all but platoon and company commander's tanks until 1942-43 meant that this style of marking was of little use. When receivers were finally issued, numbers began to appear with some frequency. The style of these numbers varied enormously. While the Germans mainly used three-digit numbers, Soviet tanks used one-, two-, three- and four-digit numbers, numbers and letters, numbers broken with hyphens and a bewildering assortment of styles. Initially, the style appears to have been a direct transfer from the numbering in the same tactical diamond insignia mentioned earlier, but with a hyphen in place of the upper/lower position used in the diamond. Therefore, instead of 45/15 (a brigade coded 45, 1st battalion, 5th platoon), the number simply became 45-15. Similarly, in a diamond using letters to indicate battalions, the diamond was dropped and the tactical numbering instead became A-01, K-40, etc. This style was supplanted eventually by two- and three-digit numbers without hyphens or letters in 1944 and 1945. The meaning of the numbers varied from unit to unit. In the 1st Guards Mechanized Corps, a three-digit number was used. The first number indicated the brigade, and the second and third were issued to all 65 tanks of the brigade consecutively. Therefore, tank 104 belonged to the 1st Guards Mechanized Brigade, 231 belonged to the 2nd Guards Mechanized Brigade and 323 belonged to the 3rd Guards Mechanized Brigade. A related system was used by the 18th Tank Corps. The first digit represented the brigade, and the numbers used were 4, 5 and 6 for the 110th, 170th and 181st Tank Brigades respectively. In other units, a more complicated system

was used. The first digit indicated the battalion, the second identified the company and the third indicated the platoon and vehicle. Soviet tank battalions during this period had a single battalion HQ tank, plus two companies each with ten tanks (1 company command tank, three platoons of three tanks each). Therefore, 100 was the battalion command tank, 110 was the command tank of the first company, 111 was the command tank of the 1st platoon, 1st company, 114 was the command tank of the 2nd platoon, 1st company, etc. This system could be expanded to four numbers, in which case the first number indicated the brigade within a tank corps. These notes can only scratch the surface of the enormous variation in Soviet tank numbering during the war, because of the enormous variety of systems and the many inconsistencies in practical use. One type of numbering not commonly seen on Soviet armoured vehicles was the vehicle serial number. The only vehicle on which this was seen regularly was the SU-76, which had a five- or six-digit number carried on the front and rear of the fighting compartment.

### Other Markings

The Soviet Army usually did not indicate 'kill' markings on tanks or other vehicles. On the rare occasions when 'kill' markings were carried, the style depended on the crew. Some crews placed small, white stars on the turret sides, others put silhouettes on the gun barrel or small X marks. On vehicles received through Lend-Lease, the Soviets usually left the vehicles in their original colours with their original markings. These included packing and moving instructions, serial numbers, inspection markings and a host of other small stencilling. Both British and American serial numbers usually were left intact. In fact, the 'USA' serials on American vehicles and tanks became so commonplace in Eastern Europe in 1944 that local folk wisdom held it to be an acronym of 'Ubiyat Sukinsyna Adolfa' ('Kill that son-of-a-bitch Adolf')!

Light AT 34 86 rests in a Berlin suburb in April 1945. It is named after the poet Vladimir Mayakovsky.



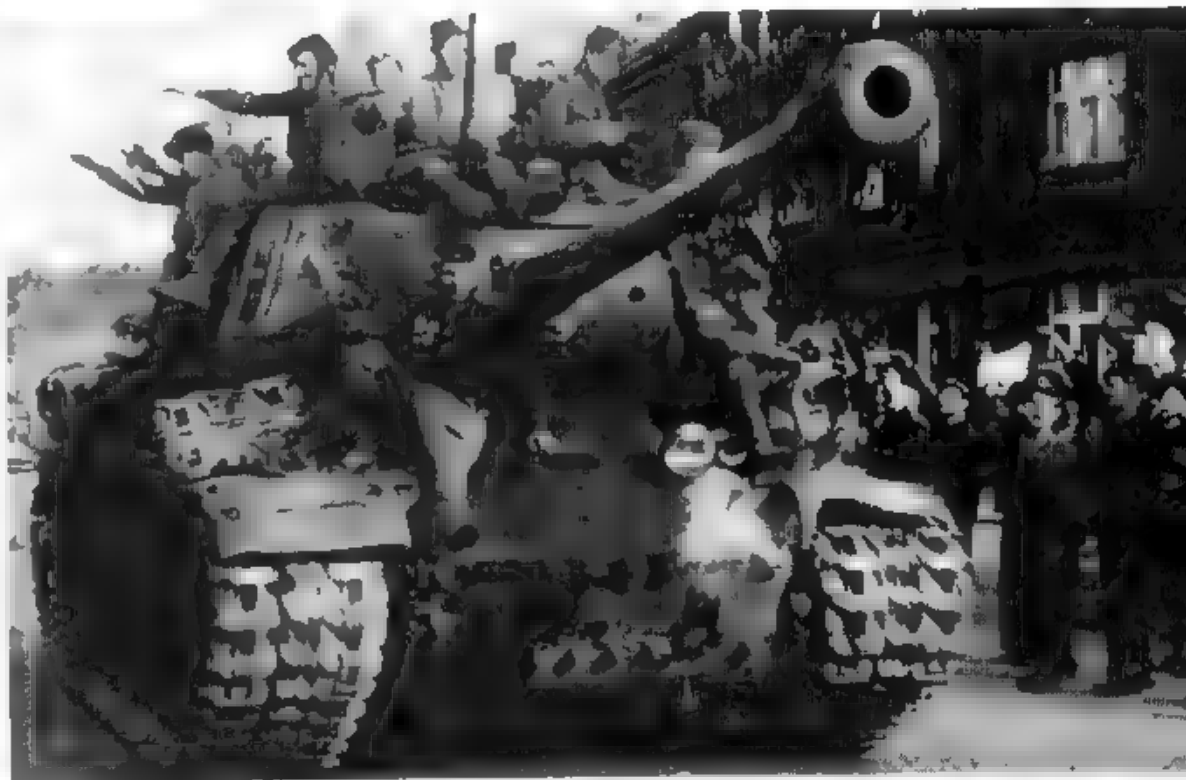
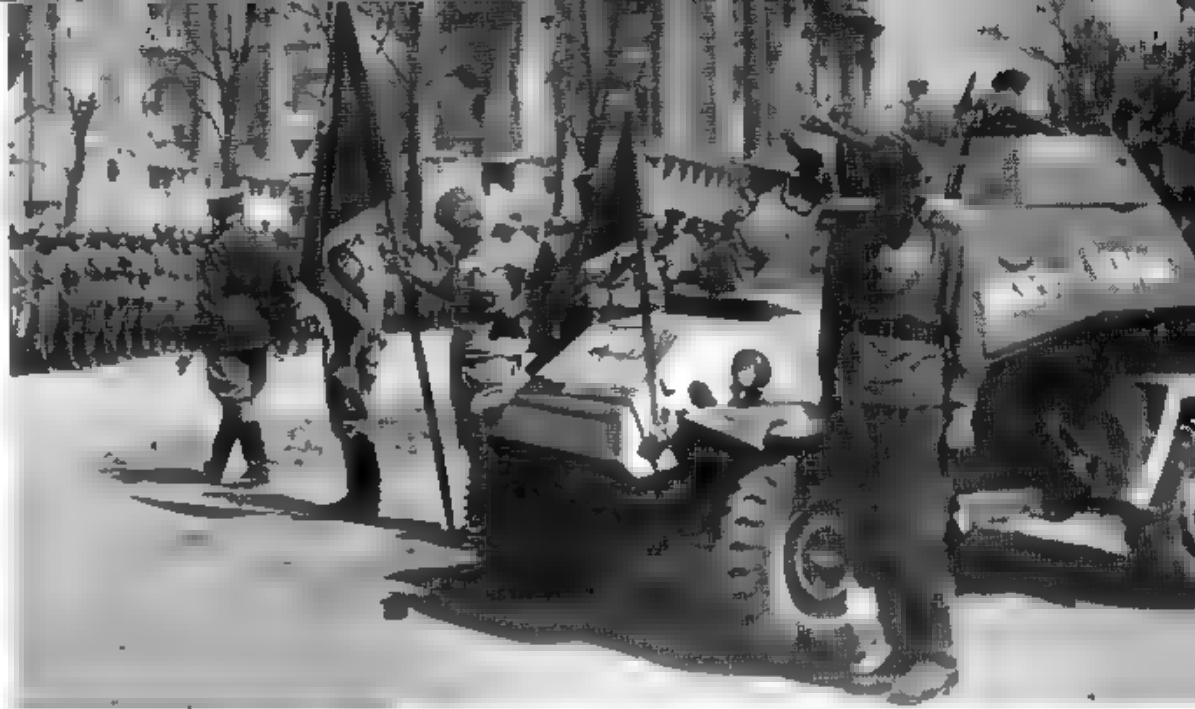




**Above.** The T-34 tank, the main battle tank of the Red Army, is shown in a city street. The tank is positioned in front of a large, multi-story building with arched windows and doorways. A group of soldiers in winter uniforms stands to the left of the tank, observing it. The tank's turret is slightly angled towards the left. The street is paved and appears to be in a European city.

**Left**

**Above right:**

[illegible]

$\frac{1}{n} \sum_{i=1}^n x_i = \bar{x}$

**Centre right:**

11

2000

100

Below right: *1* *2*

11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. 32. 33. 34. 35. 36. 37. 38. 39. 40. 41. 42. 43. 44. 45. 46. 47. 48. 49. 50. 51. 52. 53. 54. 55. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68. 69. 70. 71. 72. 73. 74. 75. 76. 77. 78. 79. 80. 81. 82. 83. 84. 85. 86. 87. 88. 89. 90. 91. 92. 93. 94. 95. 96. 97. 98. 99. 100. 101. 102. 103. 104. 105. 106. 107. 108. 109. 110. 111. 112. 113. 114. 115. 116. 117. 118. 119. 120. 121. 122. 123. 124. 125. 126. 127. 128. 129. 130. 131. 132. 133. 134. 135. 136. 137. 138. 139. 140. 141. 142. 143. 144. 145. 146. 147. 148. 149. 150. 151. 152. 153. 154. 155. 156. 157. 158. 159. 160. 161. 162. 163. 164. 165. 166. 167. 168. 169. 170. 171. 172. 173. 174. 175. 176. 177. 178. 179. 180. 181. 182. 183. 184. 185. 186. 187. 188. 189. 190. 191. 192. 193. 194. 195. 196. 197. 198. 199. 200. 201. 202. 203. 204. 205. 206. 207. 208. 209. 210. 211. 212. 213. 214. 215. 216. 217. 218. 219. 220. 221. 222. 223. 224. 225. 226. 227. 228. 229. 230. 231. 232. 233. 234. 235. 236. 237. 238. 239. 240. 241. 242. 243. 244. 245. 246. 247. 248. 249. 250. 251. 252. 253. 254. 255. 256. 257. 258. 259. 260. 261. 262. 263. 264. 265. 266. 267. 268. 269. 270. 271. 272. 273. 274. 275. 276. 277. 278. 279. 280. 281. 282. 283. 284. 285. 286. 287. 288. 289. 290. 291. 292. 293. 294. 295. 296. 297. 298. 299. 300. 301. 302. 303. 304. 305. 306. 307. 308. 309. 310. 311. 312. 313. 314. 315. 316. 317. 318. 319. 320. 321. 322. 323. 324. 325. 326. 327. 328. 329. 330. 331. 332. 333. 334. 335. 336. 337. 338. 339. 340. 341. 342. 343. 344. 345. 346. 347. 348. 349. 350. 351. 352. 353. 354. 355. 356. 357. 358. 359. 360. 361. 362. 363. 364. 365. 366. 367. 368. 369. 370. 371. 372. 373. 374. 375. 376. 377. 378. 379. 380. 381. 382. 383. 384. 385. 386. 387. 388. 389. 390. 391. 392. 393. 394. 395. 396. 397. 398. 399. 400. 401. 402. 403. 404. 405. 406. 407. 408. 409. 410. 411. 412. 413. 414. 415. 416. 417. 418. 419. 420. 421. 422. 423. 424. 425. 426. 427. 428. 429. 430. 431. 432. 433. 434. 435. 436. 437. 438. 439. 440. 441. 442. 443. 444. 445. 446. 447. 448. 449. 450. 451. 452. 453. 454. 455. 456. 457. 458. 459. 460. 461. 462. 463. 464. 465. 466. 467. 468. 469. 470. 471. 472. 473. 474. 475. 476. 477. 478. 479. 480. 481. 482. 483. 484. 485. 486. 487. 488. 489. 490. 491. 492. 493. 494. 495. 496. 497. 498. 499. 500. 501. 502. 503. 504. 505. 506. 507. 508. 509. 510. 511. 512. 513. 514. 515. 516. 517. 518. 519. 520. 521. 522. 523. 524. 525. 526. 527. 528. 529. 530. 531. 532. 533. 534. 535. 536. 537. 538. 539. 540. 541. 542. 543. 544. 545. 546. 547. 548. 549. 550. 551. 552. 553. 554. 555. 556. 557. 558. 559. 560. 561. 562. 563. 564. 565. 566. 567. 568. 569. 570. 571. 572. 573. 574. 575. 576. 577. 578. 579. 580. 581. 582. 583. 584. 585. 586. 587. 588. 589. 590. 591. 592. 593. 594. 595. 596. 597. 598. 599. 600. 601. 602. 603. 604. 605. 606. 607. 608. 609. 610. 611. 612. 613. 614. 615. 616. 617. 618. 619. 620. 621. 622. 623. 624. 625. 626. 627. 628. 629. 630. 631. 632. 633. 634. 635. 636. 637. 638. 639. 640. 641. 642. 643. 644. 645. 646. 647. 648. 649. 650. 651. 652. 653. 654. 655. 656. 657. 658. 659. 660. 661. 662. 663. 664. 665. 666. 667. 668. 669. 670. 671. 672. 673. 674. 675. 676. 677. 678. 679. 680. 681. 682. 683. 684. 685. 686. 687. 688. 689. 690. 691. 692. 693. 694. 695. 696. 697. 698. 699. 700. 701. 702. 703. 704. 705. 706. 707. 708. 709. 710. 711. 712. 713. 714. 715. 716. 717. 718. 719. 720. 721. 722. 723. 724. 725. 726. 727. 728. 729. 730. 731. 732. 733. 734. 735. 736. 737. 738. 739. 740. 741. 742. 743. 744. 745. 746. 747. 748. 749. 750. 751. 752. 753. 754. 755. 756. 757. 758. 759. 760. 761. 762. 763. 764. 765. 766. 767. 768. 769. 770. 771. 772. 773. 774. 775. 776. 777. 778. 779. 780. 781. 782. 783. 784. 785. 786. 787. 788. 789. 790. 791. 792. 793. 794. 795. 796. 797. 798. 799. 800. 801. 802. 803. 804. 805. 806. 807. 808. 809. 810. 811. 812. 813. 814. 815. 816. 817. 818. 819. 820. 821. 822. 823. 824. 825. 826. 827. 828. 829. 830. 831. 832. 833. 834. 835. 836. 837. 838. 839. 840. 841. 842. 843. 844. 845. 846. 847

$\frac{d}{dt} \left( \frac{1}{2} m \dot{x}^2 \right) = \frac{1}{2} m \ddot{x}^2$

$\gamma_1$ ,  $\alpha$

$\frac{1}{\sqrt{\pi}} \int_{-\infty}^{\infty} f(x) \delta(x-a) dx = f(a)$

6. 11. 1971. 10. 11. 1971. 11. 11. 1971. 12. 11. 1971. 13. 11. 1971. 14. 11. 1971. 15. 11. 1971. 16. 11. 1971. 17. 11. 1971. 18. 11. 1971. 19. 11. 1971. 20. 11. 1971. 21. 11. 1971. 22. 11. 1971. 23. 11. 1971. 24. 11. 1971. 25. 11. 1971. 26. 11. 1971. 27. 11. 1971. 28. 11. 1971. 29. 11. 1971. 30. 11. 1971. 31. 11. 1971. 1. 12. 1971. 2. 12. 1971. 3. 12. 1971. 4. 12. 1971. 5. 12. 1971. 6. 12. 1971. 7. 12. 1971. 8. 12. 1971. 9. 12. 1971. 10. 12. 1971. 11. 12. 1971. 12. 12. 1971. 13. 12. 1971. 14. 12. 1971. 15. 12. 1971. 16. 12. 1971. 17. 12. 1971. 18. 12. 1971. 19. 12. 1971. 20. 12. 1971. 21. 12. 1971. 22. 12. 1971. 23. 12. 1971. 24. 12. 1971. 25. 12. 1971. 26. 12. 1971. 27. 12. 1971. 28. 12. 1971. 29. 12. 1971. 30. 12. 1971. 31. 12. 1971. 1. 1. 1972. 2. 1. 1972. 3. 1. 1972. 4. 1. 1972. 5. 1. 1972. 6. 1. 1972. 7. 1. 1972. 8. 1. 1972. 9. 1. 1972. 10. 1. 1972. 11. 1. 1972. 12. 1. 1972. 1. 2. 1972. 2. 2. 1972. 3. 2. 1972. 4. 2. 1972. 5. 2. 1972. 6. 2. 1972. 7. 2. 1972. 8. 2. 1972. 9. 2. 1972. 10. 2. 1972. 11. 2. 1972. 12. 2. 1972. 1. 3. 1972. 2. 3. 1972. 3. 3. 1972. 4. 3. 1972. 5. 3. 1972. 6. 3. 1972. 7. 3. 1972. 8. 3. 1972. 9. 3. 1972. 10. 3. 1972. 11. 3. 1972. 12. 3. 1972. 1. 4. 1972. 2. 4. 1972. 3. 4. 1972. 4. 4. 1972. 5. 4. 1972. 6. 4. 1972. 7. 4. 1972. 8. 4. 1972. 9. 4. 1972. 10. 4. 1972. 11. 4. 1972. 12. 4. 1972. 1. 5. 1972. 2. 5. 1972. 3. 5. 1972. 4. 5. 1972. 5. 5. 1972. 6. 5. 1972. 7. 5. 1972. 8. 5. 1972. 9. 5. 1972. 10. 5. 1972. 11. 5. 1972. 12. 5. 1972. 1. 6. 1972. 2. 6. 1972. 3. 6. 1972. 4. 6. 1972. 5. 6. 1972. 6. 6. 1972. 7. 6. 1972. 8. 6. 1972. 9. 6. 1972. 10. 6. 1972. 11. 6. 1972. 12. 6. 1972. 1. 7. 1972. 2. 7. 1972. 3. 7. 1972. 4. 7. 1972. 5. 7. 1972. 6. 7. 1972. 7. 7. 1972. 8. 7. 1972. 9. 7. 1972. 10. 7. 1972. 11. 7. 1972. 12. 7. 1972. 1. 8. 1972. 2. 8. 1972. 3. 8. 1972. 4. 8. 1972. 5. 8. 1972. 6. 8. 1972. 7. 8. 1972. 8. 8. 1972. 9. 8. 1972. 10. 8. 1972. 11. 8. 1972. 12. 8. 1972. 1. 9. 1972. 2. 9. 1972. 3. 9. 1972. 4. 9. 1972. 5. 9. 1972. 6. 9. 1972. 7. 9. 1972. 8. 9. 1972. 9. 9. 1972. 10. 9. 1972. 11. 9. 1972. 12. 9. 1972. 1. 10. 1972. 2. 10. 1972. 3. 10. 1972. 4. 10. 1972. 5. 10. 1972. 6. 10. 1972. 7. 10. 1972. 8. 10. 1972. 9. 10. 1972. 10. 10. 1972. 11. 10. 1972. 12. 10. 1972. 1. 11. 1972. 2. 11. 1972. 3. 11. 1972. 4. 11. 1972. 5. 11. 1972. 6. 11. 1972. 7. 11. 1972. 8. 11. 1972. 9. 11. 1972. 10. 11. 1972. 11. 11. 1972. 12. 11. 1972. 1. 12. 1972. 2. 12. 1972. 3. 12. 1972. 4. 12. 1972. 5. 12. 1972. 6. 12. 1972. 7. 12. 1972. 8. 12. 1972. 9. 12. 1972. 10. 12. 1972. 11. 12. 1972. 12. 12. 1972. 1. 1. 1973. 2. 1. 1973. 3. 1. 1973. 4. 1. 1973. 5. 1. 1973. 6. 1. 1973. 7. 1. 1973. 8. 1. 1973. 9. 1. 1973. 10. 1. 1973. 11. 1. 1973. 12. 1. 1973. 1. 2. 1973. 2. 2. 1973. 3. 2. 1973. 4. 2. 1973. 5. 2. 1973. 6. 2. 1973. 7. 2. 1973. 8. 2. 1973. 9. 2. 1973. 10. 2. 1973. 11. 2. 1973. 12. 2. 1973. 1. 3. 1973. 2. 3. 1973. 3. 3. 1973. 4. 3. 1973. 5. 3. 1973. 6. 3. 1973. 7. 3. 1973. 8. 3. 1973. 9. 3. 1973. 10. 3. 1973. 11. 3. 1973. 12. 3. 1973. 1. 4. 1973. 2. 4. 1973. 3. 4. 1973. 4. 4. 1973. 5. 4. 1973. 6. 4. 1973. 7. 4. 1973. 8. 4. 1973. 9. 4. 1973. 10. 4. 1973. 11. 4. 1973. 12. 4. 1973. 1. 5. 1973. 2. 5. 1973. 3. 5. 1973. 4. 5. 1973. 5. 5. 1973. 6. 5. 1973. 7. 5. 1973. 8. 5. 1973. 9. 5. 1973. 10. 5. 1973. 11. 5. 1973. 12. 5. 1973. 1. 6. 1973. 2. 6. 1973. 3. 6. 1973. 4. 6. 1973. 5. 6. 1973. 6. 6. 1973. 7. 6. 1973. 8. 6. 1973. 9. 6. 1973. 10. 6. 1973. 11. 6. 1973. 12. 6. 1973. 1. 7. 1973. 2. 7. 1973. 3. 7. 1973. 4. 7. 1973. 5. 7. 1973. 6. 7. 1973. 7. 7. 1973. 8. 7. 1973. 9. 7. 1973. 10. 7. 1973. 11. 7. 1973. 12. 7. 1973. 1. 8. 1973. 2. 8. 1973. 3. 8. 1973. 4. 8. 1973. 5. 8. 1973. 6. 8. 1973. 7. 8. 1973. 8. 8. 1973. 9. 8. 1973. 10. 8. 1973. 11. 8. 1973. 12. 8. 1973. 1. 9. 1973. 2. 9. 1973. 3. 9. 1973. 4. 9. 1973. 5. 9. 1973. 6. 9. 1973. 7. 9. 1973. 8. 9. 1973. 9. 9. 1973. 10. 9. 1973. 11. 9. 1973. 12. 9. 1973. 1. 10. 1973. 2. 10. 1973. 3. 10. 1973. 4. 10. 1973. 5. 10. 1973. 6. 10. 1973. 7. 10. 1973. 8. 10. 1973. 9. 10. 1973. 10. 10. 1973. 11. 10. 1973. 12. 10. 1973. 1. 11. 1973. 2. 11. 1973. 3. 11. 1973. 4. 11. 1973. 5. 11. 1973

[illegible]

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# Bulgaria

Bulgaria was allied to Germany during the war on the Eastern Front, but refused to declare war on the Soviet Union. It joined the war in 1941, allowing German troops transit to Greece and itself occupying territory in that country, including Macedonia. Eventually, it sent troops to Yugoslavia where they were engaged in anti-partisan duties to keep open the Belgrade-Greece roads.

The Bulgarian armoured force initially consisted of eight Vickers 6-ton tanks acquired in 1938 and fourteen Italian CV 33 tankettes acquired in 1934. These were used to form two tank companies in the two rapid divisions. In February 1940, the Germans supplied the Bulgarian Army with 36 Pz Kpfw 35(t)s. In June 1941, the Bulgarians consolidated their very limited armour resources into the 1st Armoured Brigade, which comprised the 1st Tank Regiment and the 1st Mechanized Infantry Regiment. The tank regiment nominally consisted of a reconnaissance company with the fourteen CV 33 tankettes, and two tank battalions, one of Pz Kpfw 35(t) and the Vickers, plus another equipped with 40 French R-35s donated by the Germans. This unit saw no significant fighting and its equipment was clearly outdated. The Germans finally consented to modernize it, and beginning in July 1943 supplied Bulgaria with 46 Pz Kpfw IVs, 10 Pz Kpfw IIIs and 25 StuG III assault guns, 20 Sd Kfz 222 armoured cars, and necessary howitzers, anti-tank guns and other equipment. The newly rejuvenated tank regiment was supposed to consist of three battalions, each with two companies of 15 Pz Kpfw IVs and a company of Pz Kpfw 35(t) or 38(t) for a total of 140 tanks, but its strength never reached this level. This was probably just as well for the Wehrmacht, as on 9 September 1944 Bulgaria switched sides and turned on its former ally. The 1st Armoured Brigade served alongside Soviet units and took part in the fighting in Hungary in 1945.

Bulgarian armour, from what little evidence is available, carried no national markings until 1943. The Vickers, Pz 35(t) and CV 33s remained in the camouflage schemes of their manufacturers with only a Bulgarian Army licence number added. These licence numbers consisted of a thin white rectangle about 450mm long in which was painted a five-digit number preceded by the Cyrillic letter V (similar to the Roman B) for Voiska (Army). The Pz 35(t) tanks had two-digit turret tactical numbers painted on. In 1943, when the new German equipment began to arrive, the 1st Armoured Brigade adopted the same insignia carried by Bulgarian aircraft up to that time, a white square with black X, about 500mm high. In September 1944 the Tsar was overthrown and the Tsarist insignia was dropped as a consequence. The Army substituted a shield in the national colours of white, green and red, which was painted on some tanks both in the form of a small shield added to the licence plate in front of the number and as a large turret marking. Some Pz Kpfw IVs had the shield painted on the turret schürzen side screens. The few photographs that do exist would seem to indicate that Bulgarian StuG IIIs remained in their original German dark yellow paint. However, it would appear that the Pz Kpfw IVs were repainted in dark green overall.



**Above:** A Pz Kpfw 35(t) tank in a city street. The tank is positioned in front of a large, ornate building. Several soldiers are visible around the tank, some standing near the turret and others further back. The scene appears to be from a historical military unit.

**Below:** A Pz Kpfw IV tank in a city street. The tank is positioned in front of a large, ornate building. Several soldiers are visible around the tank, some standing near the turret and others further back. The scene appears to be from a historical military unit.

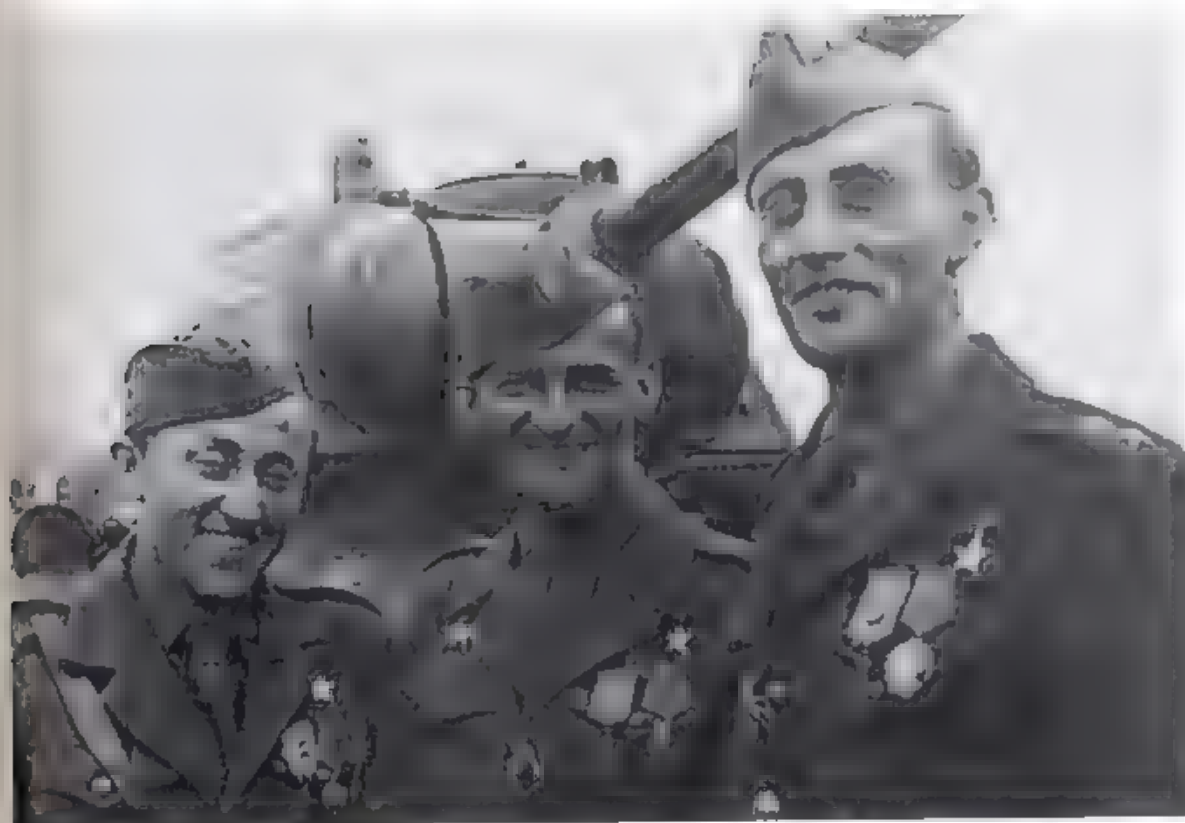


# Croatia

After the fall of Yugoslavia in 1941, the Germans formed a Croatian puppet state under Ante Pavelić. The state had no formal armour units as far as is known, but was supplied with a small number of Italian and ex-Hungarian CV 33 and CV 35 tankettes which were used for anti-partisan duty. Later, H-39 Hotchkiss light tanks about one-company strong were supplied for the same

role. The tankettes were marked with the state's crest, a red and white chequer-board shield, which was contained within a large white U, the U being a reference to the Ustashi Fascist movement. This insignia was carried on the glacis plate. The H-39s apparently were not marked, and at least one photograph indicates that they retained their original German Balkan cross insignia.

# Czechoslovakia



Left: Lieutenants Alois Ryzik and Zdeněk Štěpánek of the 1st Czechoslovak Tank Regiment pose in front of a T-34. They had received the Order of the Patriotic War for their actions during the Battle of Prague in May 1945.

In June 1943 the Czechoslovak Independent Brigade was formed in the Soviet Union with an attached tank battalion. It was equipped with T-34 Model 43s, T-70 light tanks and BA-64B armoured cars. It took part in the fighting around Kiev, and in April 1944 was expanded into the 1st Czechoslovak Tank Regiment, with two battalions. Finally, in the summer of 1944 another battalion was added, which became the 1st Czechoslovak Tank Brigade. The unit was organized along Soviet lines and fought during the Carpathian battles, ending the war in Prague. At this stage it was

equipped with T-34-85s, and had small numbers of other vehicle types, including a few IS-2 heavy tanks.

Initially, the unit carried no national markings. Instead, the tanks were named after Czech towns, legendary figures from Czech history and so on, which were painted on the vehicles in large letters. Among the names and towns used were Jan Žižka, Otakar Jaros, Janosik, Lidice, Lezaky, Sokolova, Praha, Podkarpatsky Partyzan and others. The lettering was very large initially, about 900mm high, but eventually it was reduced in size to about 350mm. The name was





## German: Panzer Grenadier Divisions



## German: Schwere Panzer Abteilung



## Soviet Unit Insignia



## Polish, Czechoslovak, Finnish, Romanian, Bulgarian, Slovak and Hungarian Insignia





Above

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Bottom left



# Finland

During the 1939-40 Winter War, the Finnish Army fielded a single tank battalion formed in December 1939 with two companies of obsolete FT-17s, two companies of Vickers 6-ton tanks and a former tank replenishment company. The first armoured unit to see action was a squadron of Landsverk 182 armoured cars of the Cavalry Brigade, though in January 1940 this unit was reformed as the 6th Tank Company. Of the tank companies, only the 4th Tank Company saw much fighting, losing seven of its thirteen Vickers plus two damaged. Although this small force did not play a major role in the 1940 war, large numbers of Soviet tanks were destroyed or captured and were used to form the basis for new armoured units raised in 1940-41. The Tank Battalion was considerably strengthened and modernized, having three tank companies, a heavy tank platoon and three armoured car platoons. As of 31 May 1941, the Finnish Army had 11 BA 20, 10 BA 10, 1 Landsverk

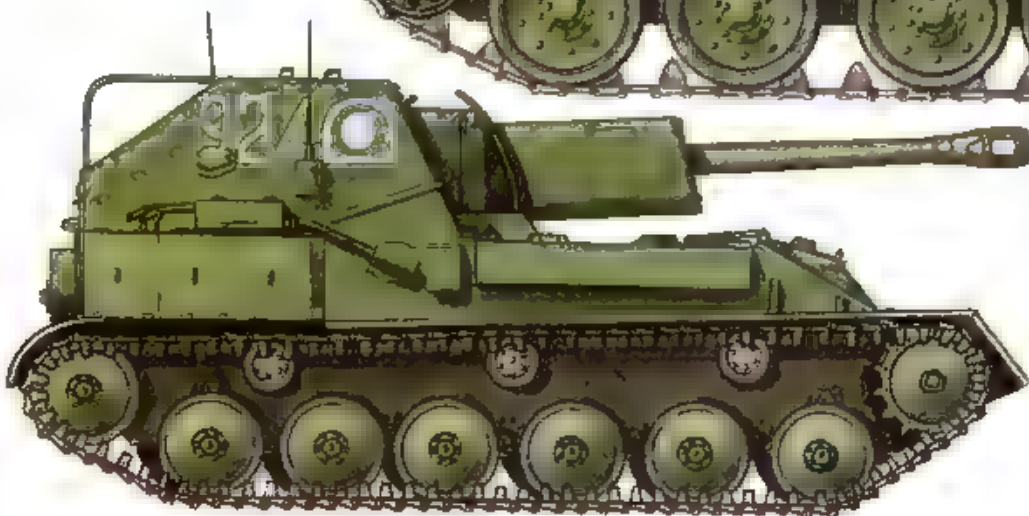
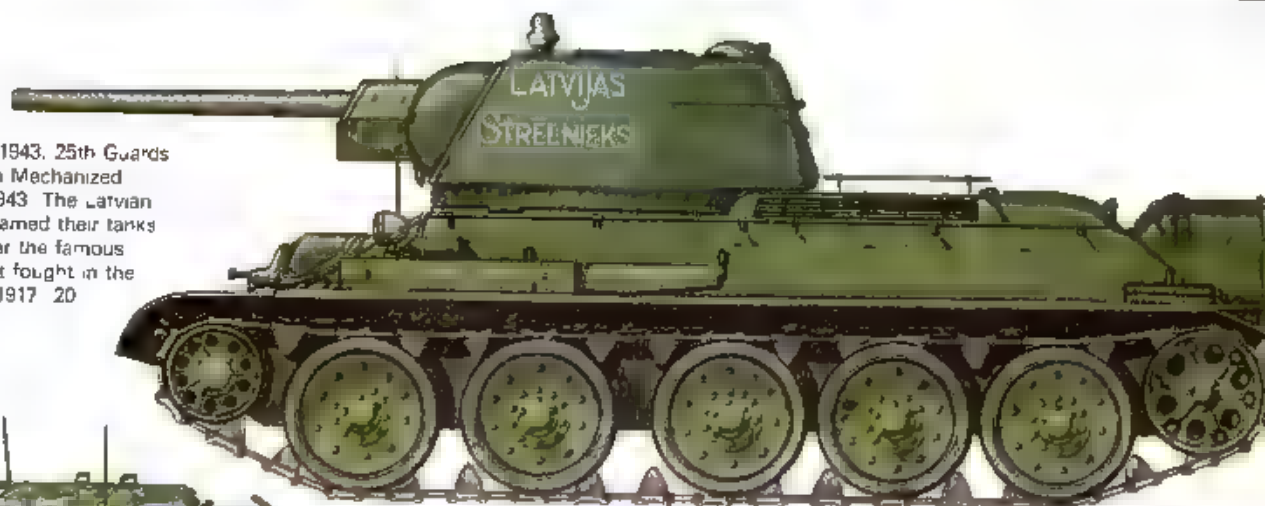
182, 29 T-37, 13 T-38, 26 T-26E (these were Vickers 6-ton tanks with Soviet 45mm guns added, not Soviet-built T-26s), 10 T-26 Model 1931, 20 T-26 Model 1933, 4 T-26 Model 1937, 2 T-28, 2 OT-26, 4 OT-130, 62 Komsomolets, 1 Vickers M 1933, 1 Vickers Mk III and 4 FT-17. On 10 February 1942, the tank force was reorganized into an expanded Tank Brigade consisting of the 1st Tank Battalion with the 1st, 2nd and 3rd Tank Companies, and the 2nd Tank Battalion with the 4th and 5th Tank Companies and the understrength Heavy Tank Company. Each company but the last had three platoons with five tanks each plus a company command tank. Finally, in June 1942 the Armoured Division was organized with the Tank Brigade, the 1st Infantry Brigade and support units. Finnish tank units fought from the outset of the Continuation War on 26 June 1941. By 1943, it was becoming apparent that much of its equipment was obsolescent, which led to the

**Below:** This ex-Soviet OT-130 flamethrower tank has had the "national insignia" added in the turret in the "white" paint. The "white" paint was used from 1940-41 but gave the first insignia before the outbreak of the 1941-42 war. National Archives.



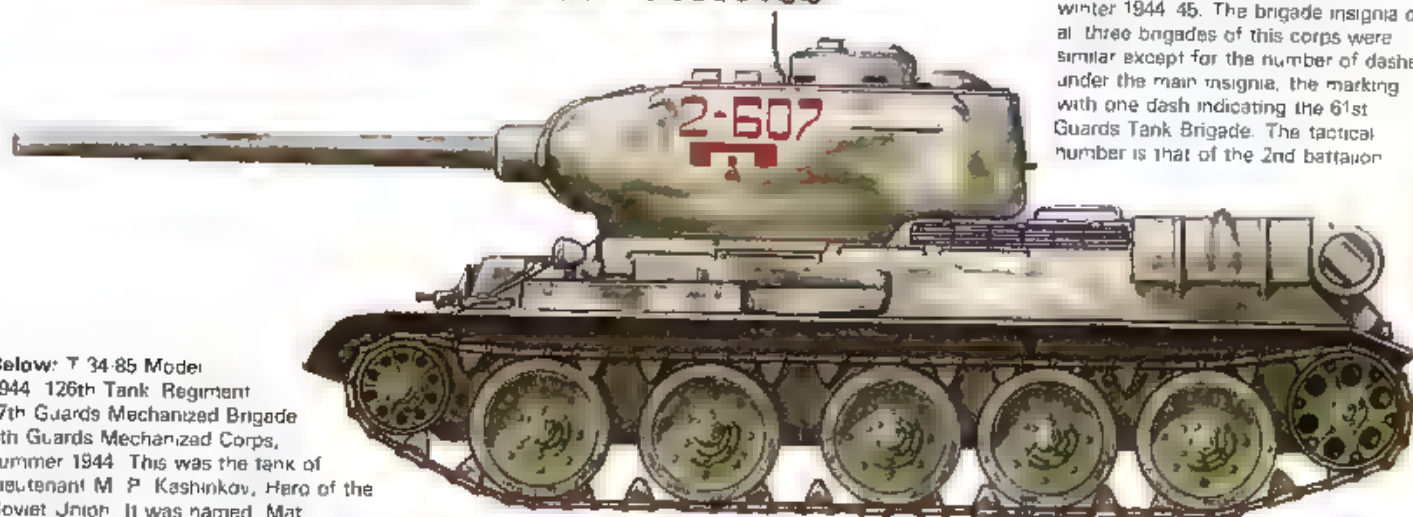


**Right:** T 34 Model 1943. 25th Guards Tank Regiment. 8th Mechanized Brigade, summer 1943. The Latvian crews of this unit named their tanks Latvian Rifles after the famous communist unit that fought in the Russian Civil War, 1917-20.

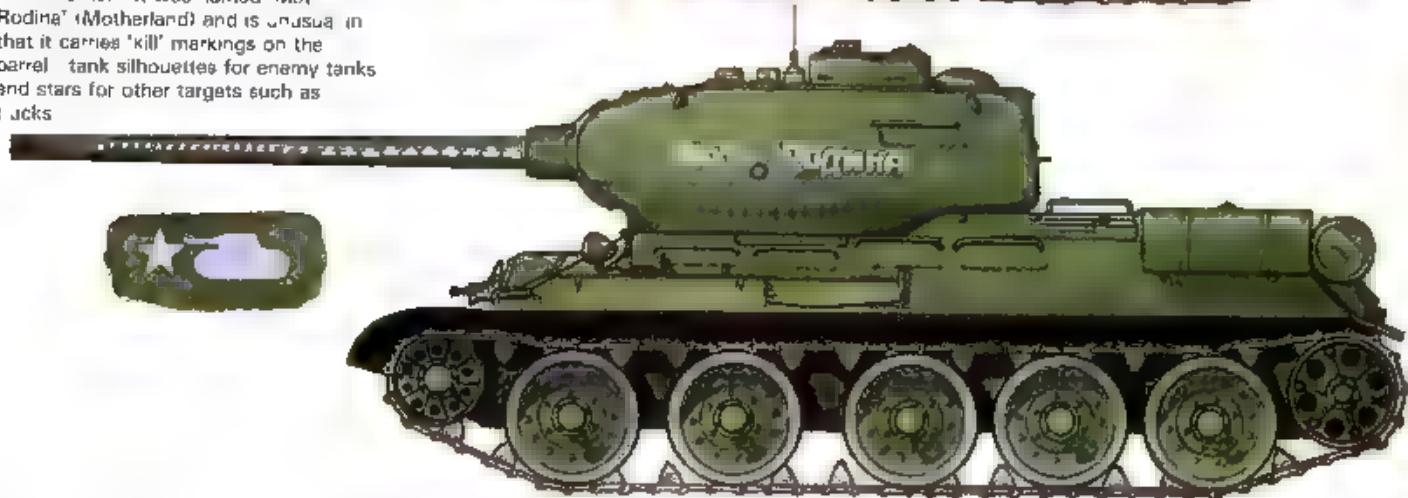


**Left:** SU 76M 1219th SP Artillery Regiment Lublin Poland, July 1944. This Suka is marked with a regimental insignia and a three-digit tactical number.

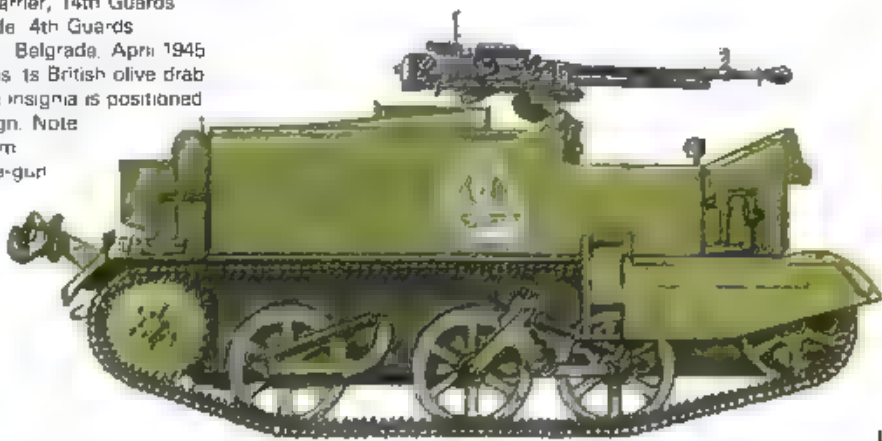
**Below:** T 34-85, 61st Guards Tank Brigade 10th Guards Tank Corps, winter 1944-45. The brigade insignia of all three brigades of this corps were similar except for the number of dashes under the main insignia, the marking with one dash indicating the 61st Guards Tank Brigade. The tactical number is that of the 2nd battalion.



**Below:** T 34-85 Model 1944 126th Tank Regiment 17th Guards Mechanized Brigade 6th Guards Mechanized Corps, summer 1944. This was the tank of Lieutenant M. P. Kashnikov, Hero of the Soviet Union. It was named 'Mat Rodina' (Motherland) and is unusual in that it carries 'kill' markings on the barrel - tank silhouettes for enemy tanks and stars for other targets such as trucks.



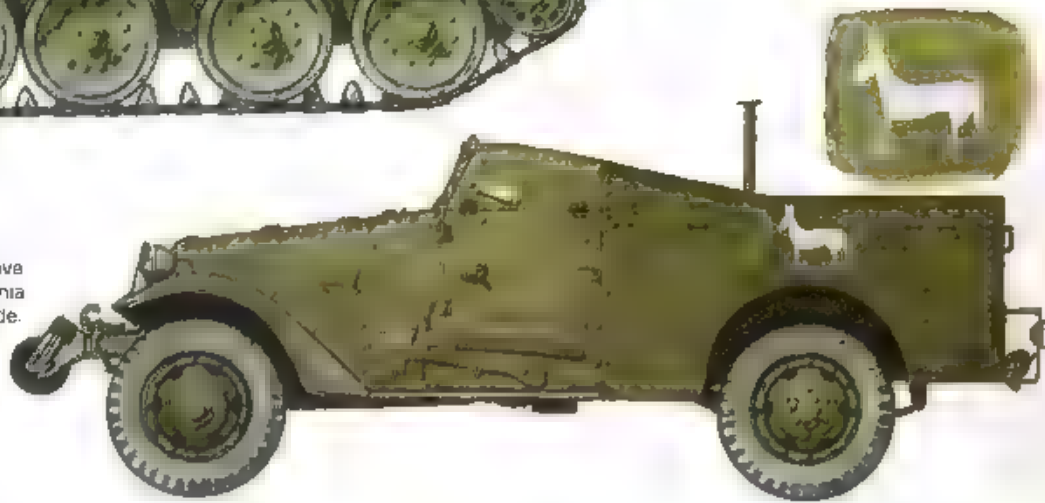
Right: Universal Carrier, 14th Guards Mechanized Brigade 4th Guards Mechanized Corps Belgrade, April 1945  
 This Carrier still has its British olive drab finish. The brigade insignia is positioned below a tactical sign. Note the Dushka 12.7mm Degtyarev machine-gun with which the vehicle has been re-armed



Left: SU-85, unidentified tank destroyer battalion summer 1944  
 This SU-85 carries the unusual slogan 'Sovietski Staratel' ('Soviet Diligence')



Right: M3A1 scout car, 17th Guards Mechanized Brigade, 4th Guards Mechanized Corps Yugoslavia, 1945  
 The vehicle is still in its original US olive drab finish. It carries the donkey insignia of the 17th Guards Mechanized Brigade.



Right: Churchill Mk. 1 unidentified Soviet Guards tank brigade winter 1943-44. This colourfully marked Churchill is named after the legendary prince Aleksander Nevskiy who defeated the Teutonic knights in the Battle of the Ice. The honorary Guards insignia is carried in two places on the front of the turret.

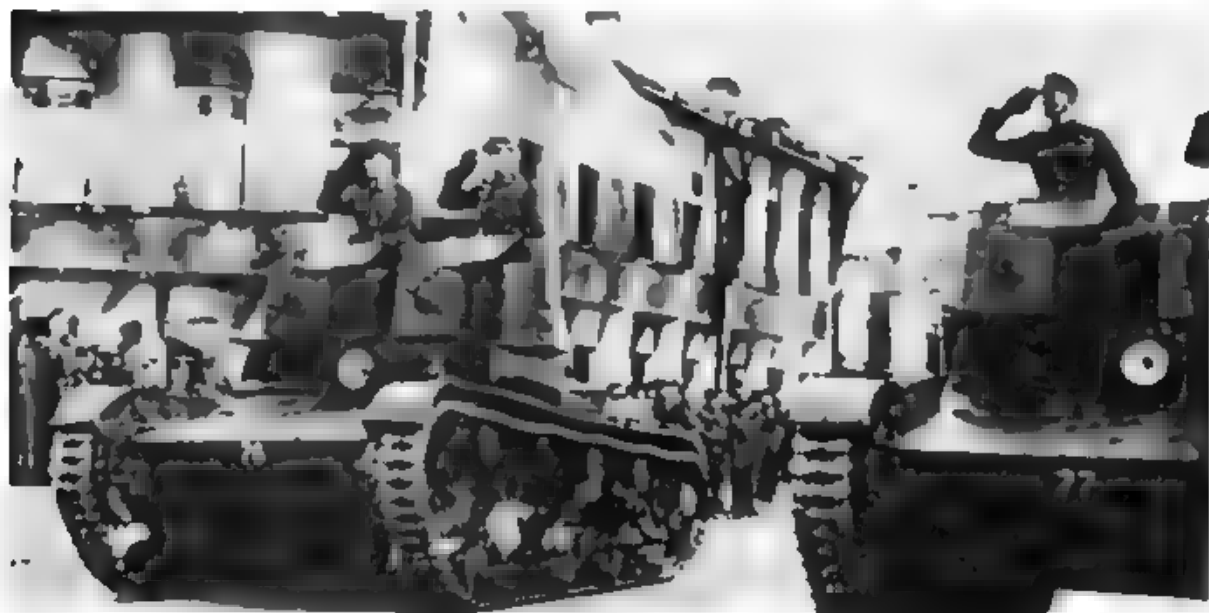
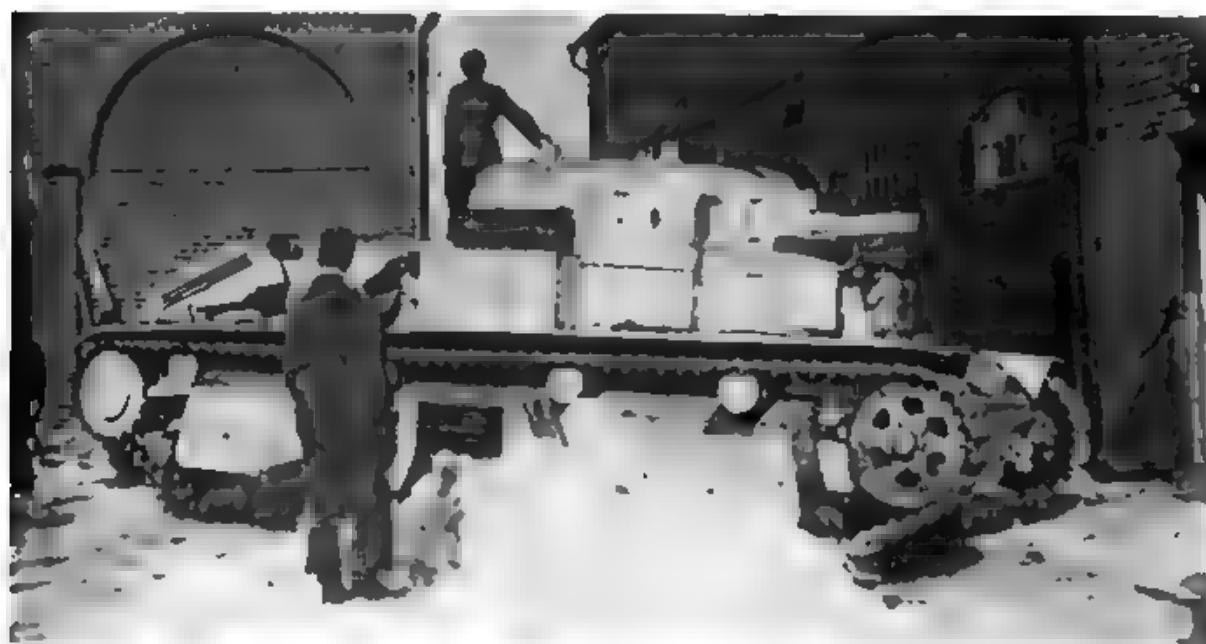




Left

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**Right:** A T 50 of the Heavy Tank Company, Tank Brigade in the spring of 1942. This vehicle's R-number 10 is obscured by the mudguard signpost, but parts of it can be seen on the upper right edge of the glacis plate. The later short arm hakaristi are quite clear in this view. Esa Mäkilä

**Bottom right:** A T 26 Model 1937 of the 3rd Tank Company in the summer of 1944. This vehicle is finished in the three-tone camouflage scheme of grey, moss green and sand brown. It carries a three-digit tactical number in yellow 135 (Esa Mäkilä)



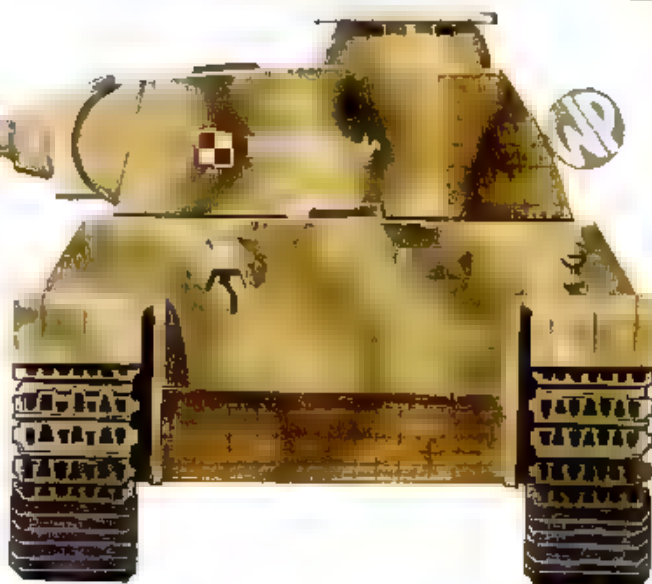
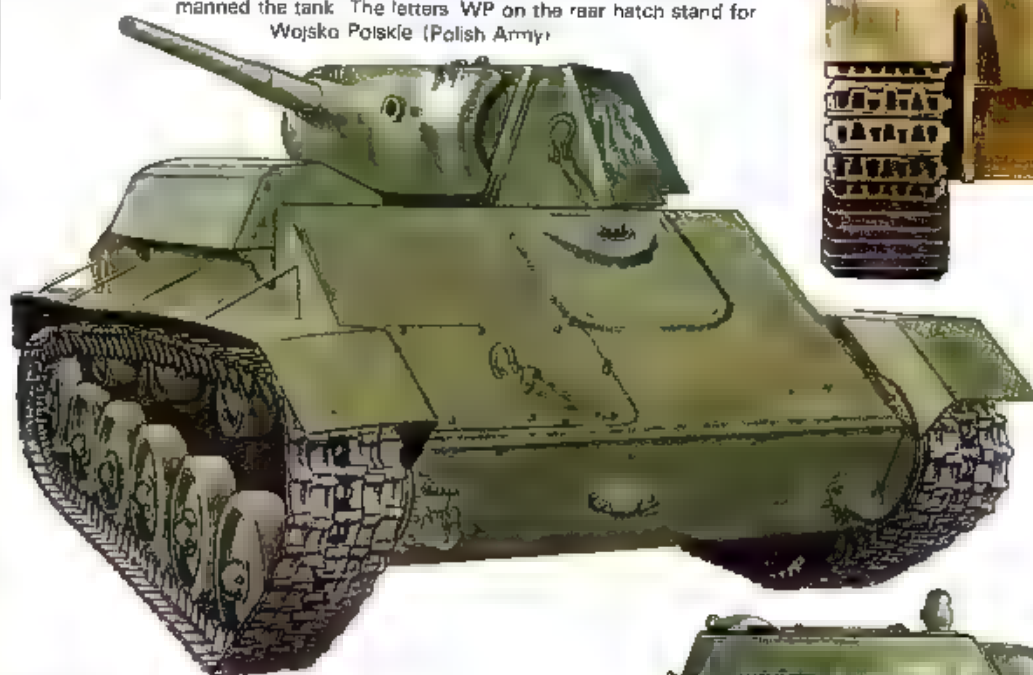
purchase of 6 Landsverk Anti 40mm SP guns from Sweden and 30 StuG IIIs from Germany. The Landsverk were used by the Armoured AA Battery of the Armoured Division, while the StuG IIIs were used to re-equip the Assault Gun Battalion, which had previously used the BT-42. The BT 42 was a Finnish improvisation built in 1942 and consisted of a First World War-vintage British 114mm howitzer mounted on a captured Soviet BT 7 chassis. In June 1944, the Soviets launched a major counter-offensive against Finland to eliminate that country from the war. During the savage fighting that summer it became evident that more modern equipment was desperately needed, leading to the purchase of 29 StuG III, 15 Pz Kpfw IV and 3 T-34 from Germany. The Finns signed an armistice on 4 September 1944. In the following months of the Lapland War, when German troops were forced to withdraw, the tanks played little active role.

Tanks in the 1940 Winter War were finished in dark green overall. Their turrets were painted with white/pale blue/white bands (the national colours) to distinguish the Vickers from the very similar Soviet T 26. This form of national insignia remained in use in 1940, but on 21

June 1941 the hakaristi was adopted as the new tank insignia. This marking bears no relation to the Nazi swastika, having been used on Finnish aircraft since 1918. The orders showed a short-arm version of this insignia, but initially the troops painted on a black insignia with white shading that had full-length arms like the aircraft insignia. Only later did the official, short-armed version become prevalent. During the winter months of the Continuation War, Finnish tanks were finished in white. In the spring of 1943, the summer scheme of dark green overall was superseded by a three-colour camouflage scheme of moss green, grey and sand brown. In spite of its official name, the sand brown was in fact a dark brown. The German vehicles that arrived in July-August 1944 remained in German dark yellow until 1945. Thus three-tone scheme had been used on Finnish artillery since 1941. Beginning in March 1942, Finnish tanks had tactical insignia painted on the turret, a square for the 1st Tank Company, a circle for the 2nd Tank Company and a triangle for the 3rd Tank Company. Individual vehicle numbers were painted inside these hollow signs, running from 0 to 15 (0 being the company commander, 1-5 being 1st platoon, and so



Right: Panther Ausf G, Zoska Battalion, Polish Home Army, Warsaw uprising, August 1944. This was one of two Panthers captured by the Polish insurgents and used during the fighting in Warsaw. It carries the name 'Pudel' and the national szachownica (chequer-board design, red and white insignia). The white fleur-de-lis is the insignia of the Polish Boy Scouts (Grey Ranks), which captured and manned the tank. The letters WP on the rear hatch stand for Wojsko Polskie (Polish Army).



Left: T-70, 2nd Tank Regiment, 1st Polish Armoured Brigade, August 1944. This T-70 has such a small turret that the national insignia has had to be carried on the mantlet front instead of the usual place with the number on the turret side.

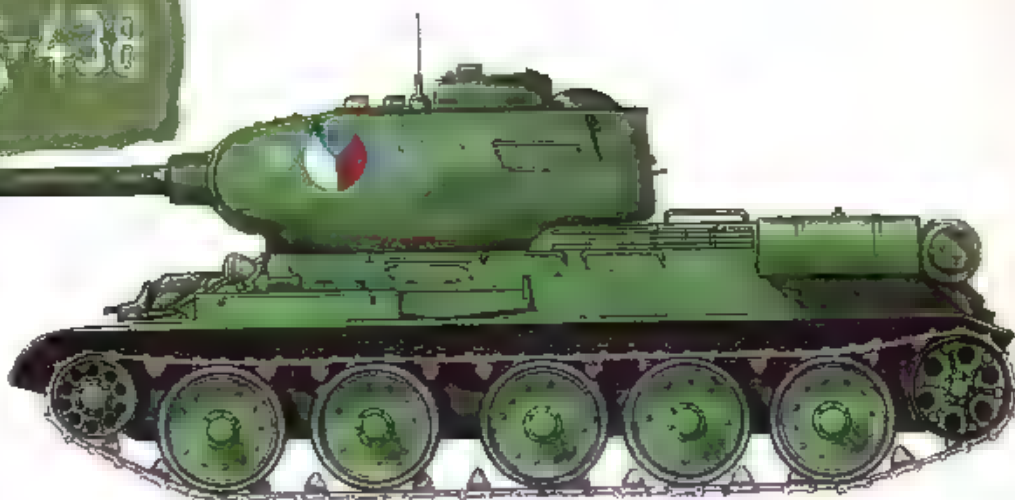
Right: T-34 Model 1943, 1st Czechoslovak Tank Battalion, summer 1943. This T-34 was named after Janosik, a folk hero in Polish and Slovak legends, somewhat akin to a Tatra mountain's version of Robin Hood.



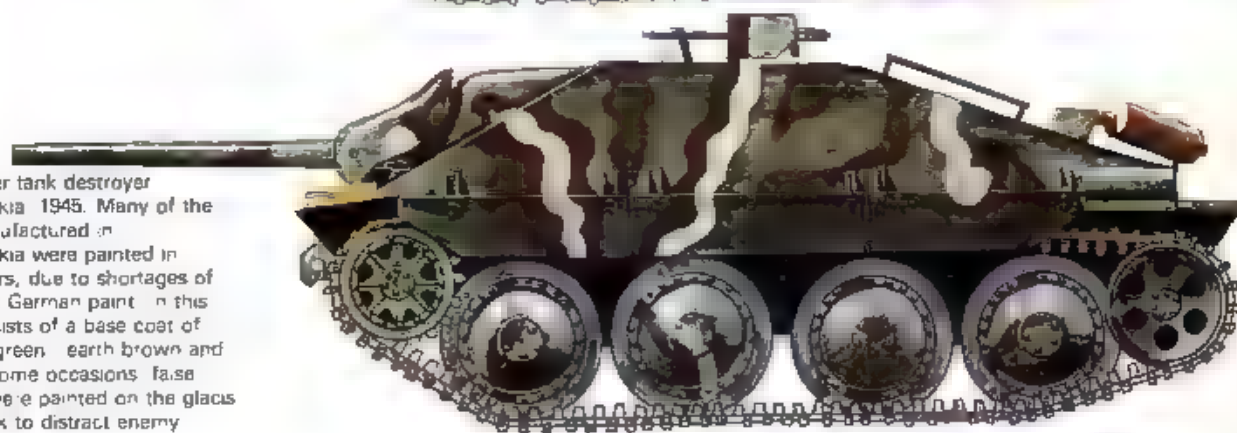
Left: T-34-85 Model 1944, 1st Polish Armoured Brigade, winter 1944-45. This tank has been camouflaged in an irregular whitewash pattern. The tactical number indicates that it belonged to the brigade's chief of staff.



**Right:** T-34-85, 1st Czechoslovak Independent Tank Brigade, Prague 1945. This view shows the full set of Czechoslovak markings, including the national insignia and brigade insignia. During the fighting, the brigade insignia (a bisected circle) was seldom used, nor was the tactical numbering usually preceded by 'CS'.



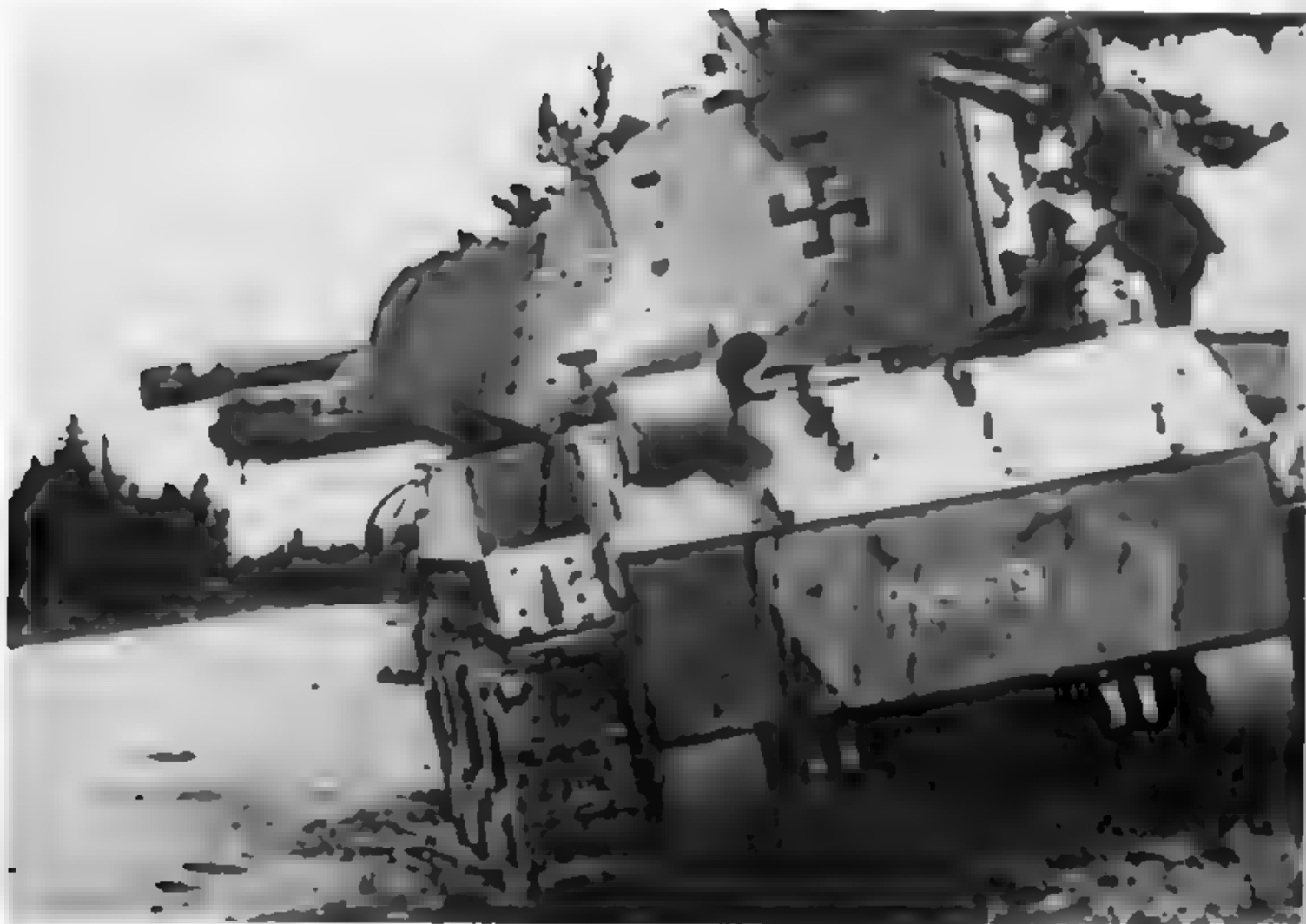
**Right:** Hetzer tank destroyer, Czechoslovakia 1945. Many of the Hetzers manufactured in Czechoslovakia were painted in Czech colours, due to shortages of the standard German paint. In this case, it consists of a base coat of khaki (dark green, earth brown and cream). On some occasions, false vision slits were painted on the glacis plate in black to distract enemy gunners.



**Right:** Pz Kpfw IV Ausf. H, 1st Bulgarian Armoured Brigade, Nagykanizsa, Hungary, April 1945. This view shows both the national shield insignia as well as the usual army serial number plate at the rear.

**Right:** StuG III, 1st Bulgarian Assault Gun Group, Hungary 1945. Although most Bulgarian vehicles had their Tsarist markings overpainted, this vehicle is still marked with the Tsarist St. Andrew's cross on a white square. It is finished in German 'dark yellow overall', as delivered.





**Left:** A BT 42 knocked out during the fighting in the summer of 1944. This vehicle is finished in the three-tone camouflage scheme standard at this time, but no sanding or 'blow' work can be seen as the moss green colour and is not clearly evident in the photograph. This view also shows the tank style of vehicle registration number in the hull rear. The BT 42 did not carry three-digit turret numbers (George Bain).

**Bottom left:** The first StuG III issued by Finland in the summer of 1944 at the Central Repair Works in Vaasa. This vehicle has had the new three-tone camouflage scheme applied, but has not yet had the typical Finnish modifications carried out, such as the addition of a sawage at the hull rear of the machine gun, the spare road wheels on the hull sides (Esa Mäkkö).

**Top right:** The StuG III Ps 63-14, photographed in late summer 1944, has been heavily modified by adding of running and applique armour to the extent that its markings are no longer very evident. While serving with the 2nd Company of the Assault Battalion, it scored six kills against Soviet tanks, as is evident from the white bands on the gun barrel. It was later transferred to the 1st Tank Brigade as a training tank (Esa Mäkkö).

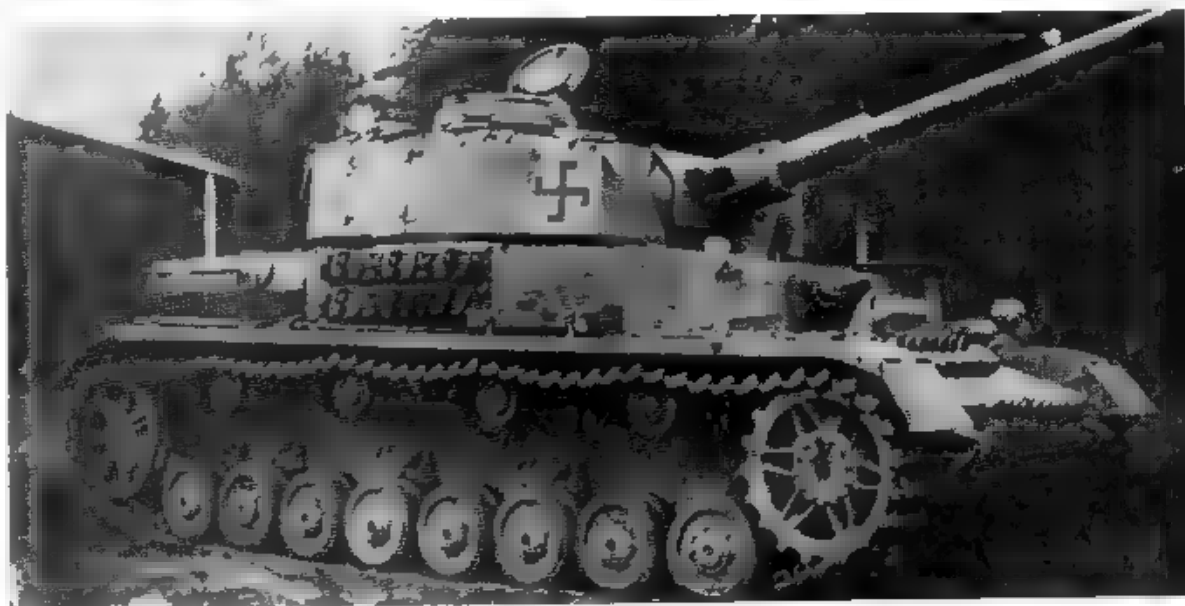
**Bottom right:** A Pz Kpfw V or the HQ, 2nd Tank Battalion in autumn 1944. Like most of the armoured vehicles obtained the last month in July 1944, there was little time to finish the Finnish camouflage and so it retained its German dark yellow with a light over spray of dark green camouflage. Its registration number was Ps 22 (Esa Mäkkö).

on). Aside from this insignia, in the autumn of 1941 the 3rd Tank Company had adopted the skull and crossbones as a unit insignia and the 2nd Company a dragon. These insignia were painted on the glacis plate, but began to disappear by the end of 1941. Finally, in 1943, a large three-digit tactical numbering system was adopted. The numbers were used in a method similar to the German system. The number 521 would indicate 5th Tank Company, 2nd platoon, 1st vehicle; 201 would indicate 2nd Tank Company, commanders's vehicle; 012 would indicate the second HQ tank of the 1st Tank Battalion.

Originally, Finnish tanks carried a one to three digit 'R-number' (Rekisteri numero-registration number). This was carried on a left side licence plate on the Vickers, but on other vehicles it could be seen painted fore and aft in either the left, right or centre position. These numbers ran from 0 through 906. In 1943, a different system was adopted. Each type of vehicle was given a two- or three-digit code preceded by the letters Ps (for panssarivaunu-armoured vehicle). This was followed by an individual vehicle number, such as Ps 245-8, the 245 being common to all T-34-85, and -8 indicating the eighth vehicle of this type in service. The registration number of each type is given in the table along with the number of vehicles of that type still in service in January 1945.

# Registration numbers for armoured vehicle types in Finnish service as at 1 January 1945

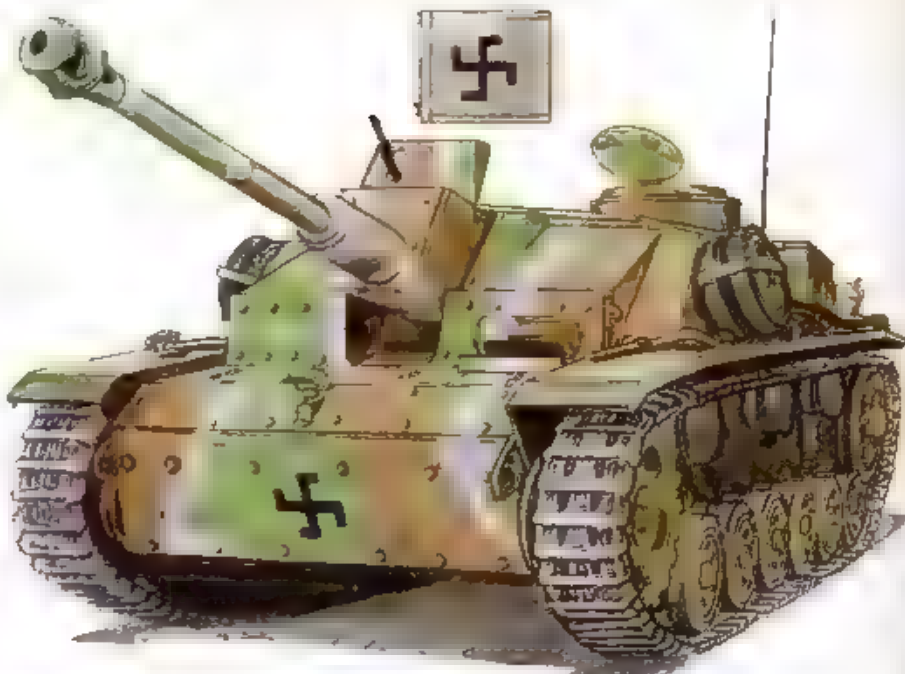
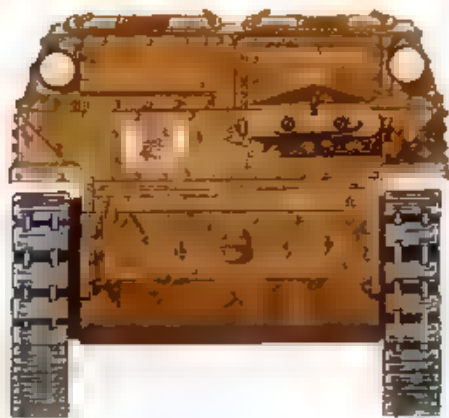
| Type                 | Serial              | Total in service                                |
|----------------------|---------------------|---|
| BA 20                | Ps 5, Ps 6          | 18  |
| BA 10                | Ps 25, Ps 26, Ps 27 | 23  |
| T 26E                | Ps 161              | 19  |
| T-26 Model 1931      | Ps 162              | 0   |
| T-26 Model 1933      | Ps 163              | 75 of Model 33 and Model 37 see preceding entry |
| T 26 Model 1937      | Ps 164              |   |
| T 50                 | Ps 183              | 1   |
| T-34                 | Ps 231              | 7   |
| T-28                 | Ps 241              | 7   |
| T-34-85              | Ps 245              | 7   |
| KV-1 Model 1942      | Ps 271              | 1   |
| KV-1 (appliqué)      | Ps 272              | 1   |
| Landsverk Anu        | Ps 455              | 6   |
| BT-42                | Ps 511              | 10  |
| StuG III             | Ps 531              | 47  |
| T-38 training tank   | Ps 601, 602         | 12  |
| T 38 amphibious tank |                     | 3   |



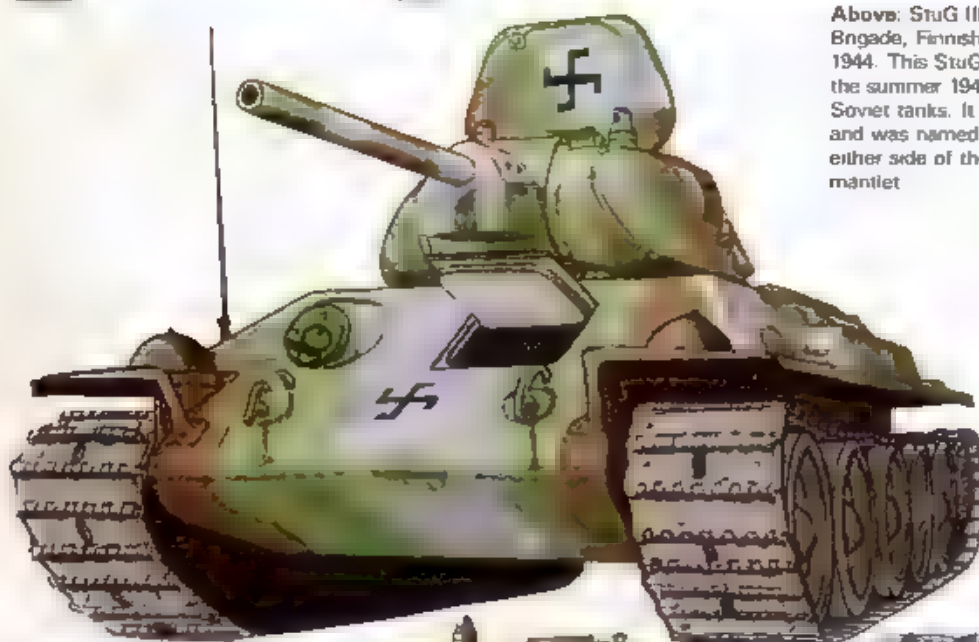




**Below:** CV 35, Croatian Ustashi Militia, Yugoslavia, summer 1944. The Croatian Fascist anti partisan units mainly used ex-Italian and ex-Hungarian tankettes, to which was added the Ustashi emblem with Croatian crest



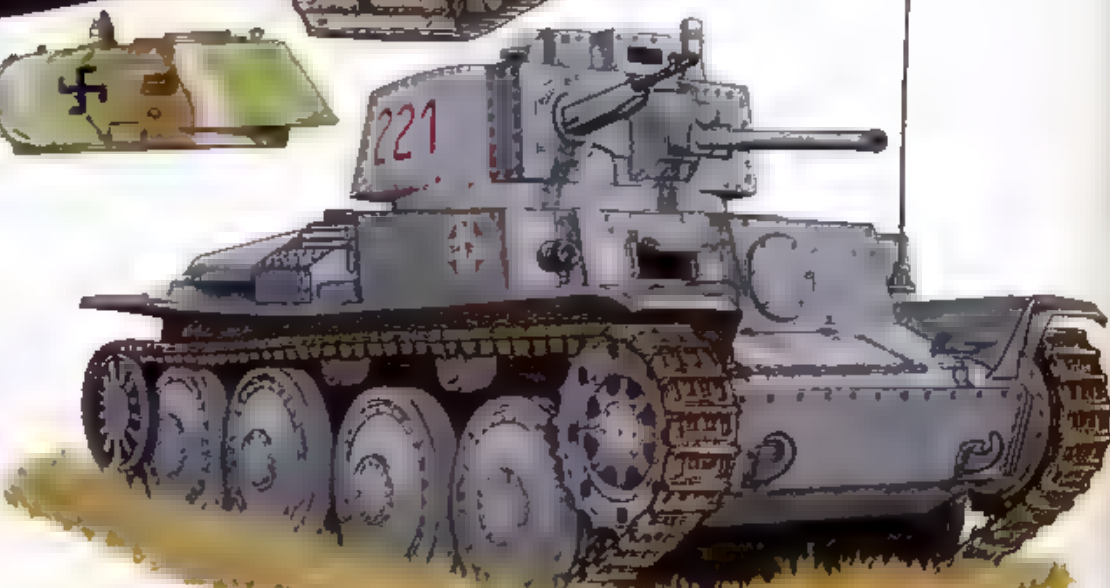
**Above:** StuG III Ausf G, 2nd Company, Assault Gun Brigade, Finnish Armoured Division, Enso, Finland, June 1944. This StuG III was the highest scoring assault gun of the summer 1944 campaign, scoring eleven kills against Soviet tanks. It was commanded by Yhteysantti B. Brodeur and was named 'Bubi'. The hakaristi insignia was carried on either side of the hull, on the bow, and on top of the gun mantlet



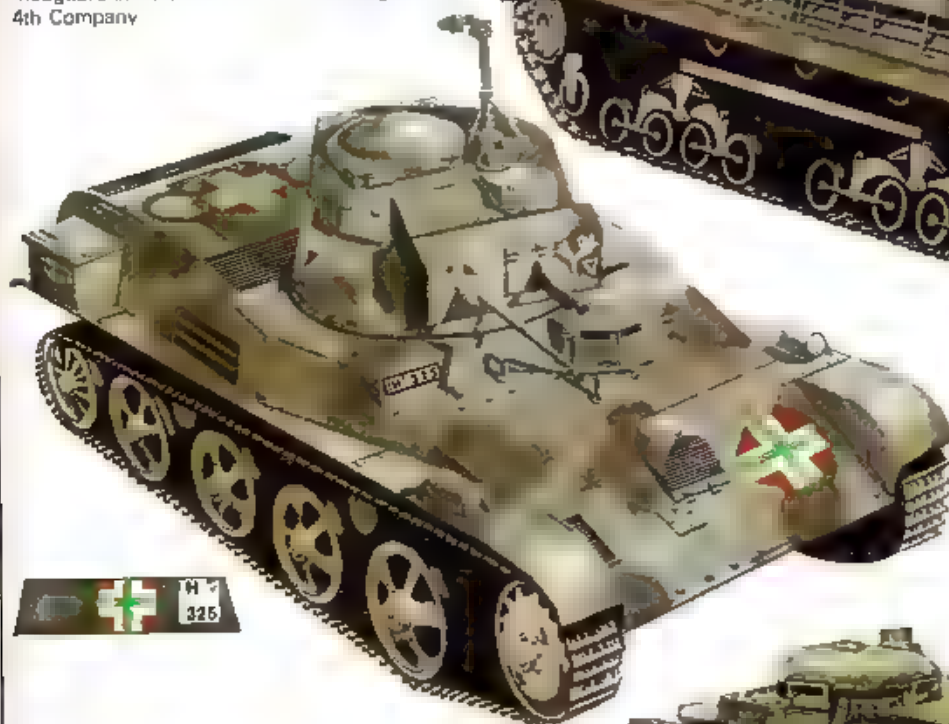
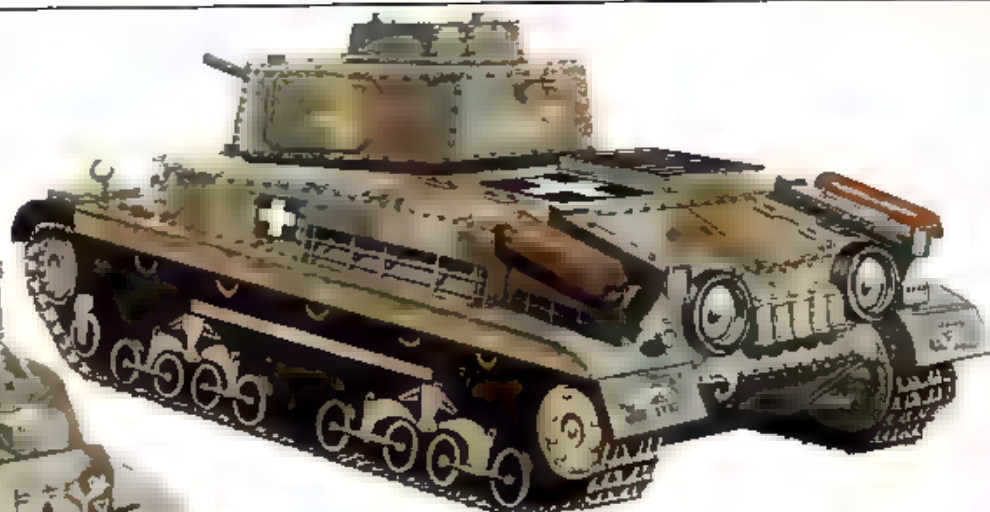
**Left:** T-34 Model 1941, 3rd Company, 1st Tank Brigade, Finnish Armoured Division, Enso, Finland, June 1944. This T-34 is finished in the standard three-colour scheme of Finnish armour. The national insignia is quite prominent here. The turret tactical numbers were carried on the rear of the turret, together with the hakaristi emblem.



**Right:** Pz Kpfw 38(t) Ausf D, 1st Hungarian Armoured Division, Don Front, 1942. This vehicle carries the Hungarian cross on either side, and on the bow is the bisected rhomboid tactical insignia, which indicates that this vehicle belonged to a medium tank company



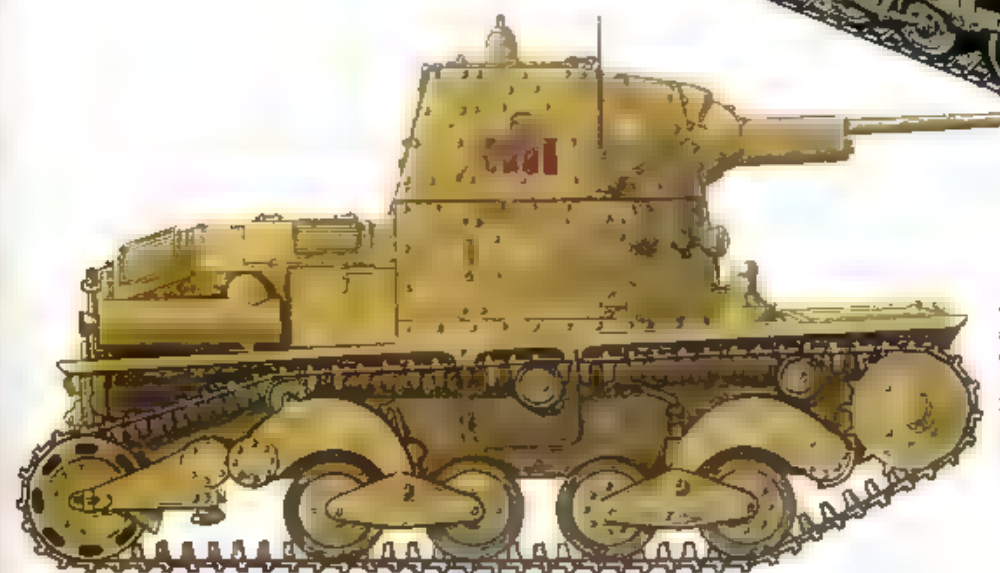
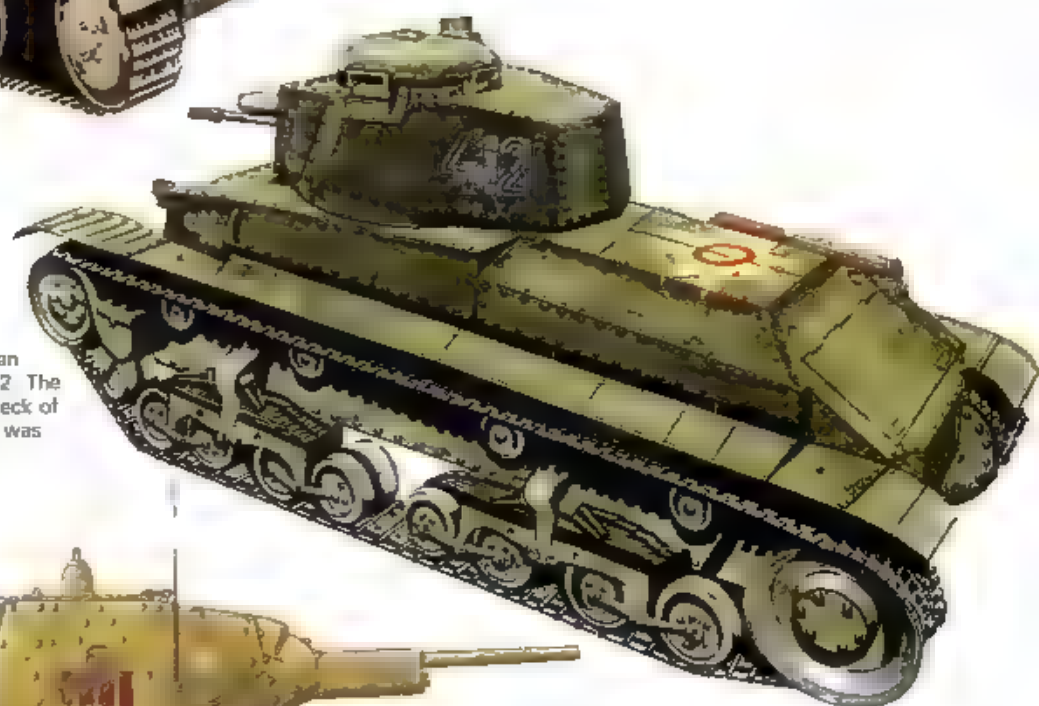
**Right:** Turan, Hungarian 2nd Armoured Division, Galicia Poland, summer 1944. This Turan has the later style national cross on the hull sides and on the engine deck in a larger form for use as an air identity marking. On the mudguard is the divisional insignia and the tactical sign for a medium tank company. The tactical number and the four dashes below the tactical sign on the mudguard indicate that this tank belonged to the 4th Company



**Left:** Toldi, 11th Hungarian Armoured Reconnaissance Battalion, Donets Front, summer 1941. This Toldi displays the full range of Hungarian insignia, including the cross on the bow, rear and turret sides, the national crest in front of the turret cross, and the science plate on the bow and rear. The white tulip is believed to be a battalion insignia



**Right:** R 2, 1st Tank Regiment, 1st Romanian Armoured Division, Don Front, summer 1942. The Michaelle cross was carried on the engine deck of tanks in full colour for air identification, but was carried in a simplified form on the hull side.



**Left:** L6-40, LXVII Bersaglieri, Italian 3rd Divisione Celere, autumn 1942. This vehicle arrived in Russia in desert paint, whereupon the crews smeared it with dark mud for camouflage. The insignia on the hull side indicates that this vehicle belonged to the 3rd platoon of the 1st company, and the 2 indicates it was the second vehicle of the platoon. These markings were repeated on the glacis plate in front.

# Hungary

Of all Germany's allies on the Eastern Front, the Hungarian Army deployed the largest armoured force and, apart from Italy, was the only ally with significant indigenous tank production. In 1938, Hungary acquired 104 CV 35 tankettes from Italy and began production under licence of the Swedish Landsverk L60B light tank, which was called the Toldi. The new Hungarian armoured units saw a small amount of fighting in the brief two-day war with Slovakia in March 1940, losing a few tankettes to air attack. Hungary entered the war on 10 April 1941 and participated with Germany in the invasion of Yugoslavia. At the time, the 1st and 2nd Motorized Brigades and the 2nd Cavalry Brigade each had an armoured reconnaissance battalion with a company of 20 Toldi light tanks, a company of 20 CV 35 tankettes and a company of 10 Alvis Straussler Csaba armoured cars. These units were the 9th, 11th and 3rd Armoured Reconnaissance Battalions respectively. Hungary entered the war with the Soviet Union on 27 June 1941, and the three brigades formed the Gyorshadtest (Fast Corps) with a total of 81 Toldis, 48 Csabas and 60 CV 35 tankettes. During the drive on the Donets River, the Hungarian units suffered severe equipment losses. Hungarian armoured vehicles of the period were not durable enough, nor were they heavily armed or armoured enough to stand up to the Soviet weapons. In October 1941, the Hungarian General Staff laid the groundwork for two armoured divisions and a mechanized cavalry division. Due to the delay in the production of the new Turan medium tank, the Hungarians were obliged to purchase armoured equipment from the Germans in order to field the 1st Armoured Division in 1942. A total of 8 Pz Kpfw I Ausf B, 102 Pz Kpfw 38(t) and 22 Pz Kpfw IV Ausf D were obtained, and these were used by the 1st Motorized Brigade to form the 1st Hungarian Armoured Division. The unit fought in the Don campaign in 1942, on the left flank of the German drive on Stalingrad. In January 1943 it was smashed by the Soviet counter-offensive, with only six tanks surviving to return to Hungary with the division in March 1943.

In the meantime, the 2nd Hungarian Armoured Division was being formed using the new Turan tanks and other Hungarian equipment, and plans were underway to equip the 1st Cavalry Division. In April 1944, the 2nd Armoured Division was sent into action in Galicia in eastern Poland. It was quite clear that the new Turans were inadequate to face T-34-85s, and the Germans finally consented to sell Hungary some more modern tanks, including a handful of Panthers and Tigers. However, when the 1st Cavalry Division went into action in June 1944 in eastern Poland, it was still equipped solely with the outdated Hungarian vehicles, not receiving its first Marder tank destroyers until August 1944.

The Germans occupied Hungary in March 1944, nearly putting an end to Hungarian vehicle production. The Germans forced the Hungarians to commit the remainder of its units to the Eastern Front, which included the new assault artillery battalions equipped with Turan tanks or Zrinyi or StuG III assault guns. Hungarian armoured units remained in action on the

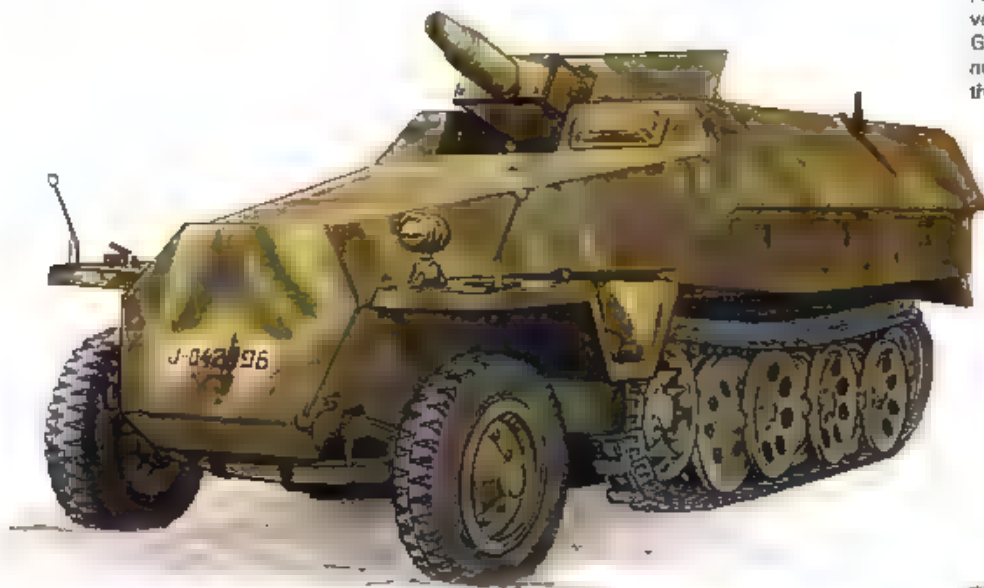




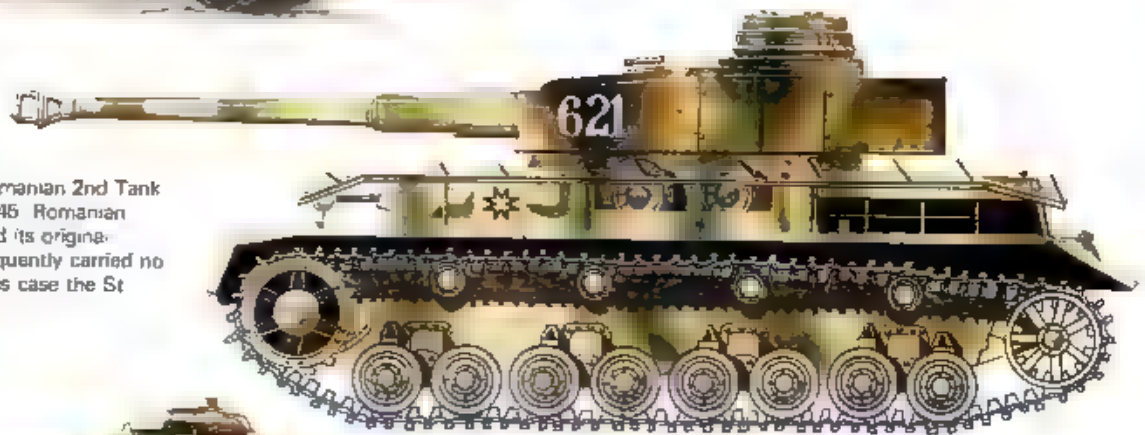
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**Left:** Sd Kfz 251/9 assault gun. Romanian 1st Armoured Division, summer 1944. Romanian vehicles were difficult to distinguish from allied German vehicles, although their licence plate numbers usually started with the letter J rather than the standard Wehrmacht WH.



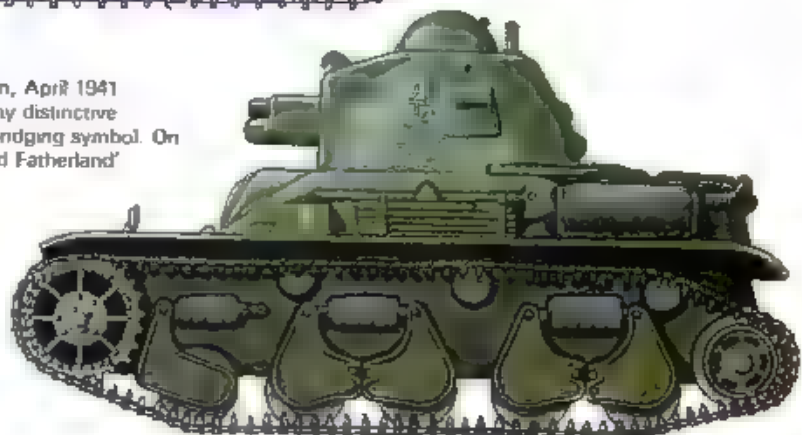
**Right:** Pz Kpfw IV Ausf J, Romanian 2nd Tank Regiment, Czechoslovakia, 1945. Romanian armour late in the war retained its original German paint scheme and frequently carried no national insignia, though in this case the St Michael's cross is still evident.



**Left:** LT vz 35, Slovak Fast Corps, Russia, summer 1941. Slovak armour that was taken over from disbanded Czechoslovak units in 1939 retained the original three-tone Czech paint scheme. The Slovaks added a three-digit tactical number to the turret sides in German fashion.



**Right:** R-35, Yugoslav 2nd Tank Battalion, April 1941. Yugoslav tanks in 1941 seldom carried any distinctive markings. This R-35 has a French-style bridging symbol. On the turret side is the slogan 'For King and Fatherland'.





Above



Right

Eastern Front even after Hungary had been overrun, some of the units being gradually re-equipped with more modern German equipment to replace their Turans and Zrinys lost in action.

#### Camouflage Painting

Hungarian armour manufactured in 1941 and later was finished in a 'French' style of camouflage consisting of a base colour of dark olive green with light ochre and red-brown blotches. Up to 1942, this disruptive camouflage was brush applied with hard-edged patterns of irregular blotches. However, in 1942 the Hungarians began to use spray equipment on the newer Turans and other types, giving the camouflage patterns a more diaphanous appearance. Some of the vehicles delivered in 1944 seem to have been left in a uniform dark green overall, and at least some Csaba armoured cars were delivered in light ochre overall. German-supplied vehicles were left in the original colours. In the case of the vehicles of the 1st Armoured Division in 1942, this was panzer grey overall, while later vehicles were supplied in dark yellow. There are few clear photographs of the German vehicles supplied after June 1944, so it is impossible to note if they were camouflage painted or if they sported Hungarian insignia.

#### National Insignia

In 1940, the Hungarians used a Maltese cross as national insignia. This was rarely used on armoured vehicles, but consisted of a white cross with a thin green border and a hollow red circle in the centre. From 1941 through 1943, the Hungarian vehicle insignia was a Balkan cross similar in shape and proportion to the German insignia. However, the Hungarian cross was green with a white border and had triangular red areas filling in the spaces between the arms. This insignia was often accompanied by the Hungarian coat of arms in red, white and green. In 1944 and 1945, the Hungarian ground units adopted the same insignia that had been used by the air force, a white cross on a black square. The positioning of the national insignia varied: on the Toldi, the early cross was carried on the sides of the turret and the glacis plate; while on the Pz Kpfw 38(t) and the Pz Kpfw IV, it was carried on the hull sides. The later cross was usually carried on either side of the hull on most armoured vehicles, and was usually repeated quite large on the rear engine deck for air identification. Many of the vehicles of the 2nd Armoured Division in Galicia in 1944 had the national cross painted over or covered with mud, probably because it made a good aiming point for Soviet anti-tank gunners.



Left

ad AA batteries man their vehicles. The Hungarian Army had hoped Nimrods for anti-air

only armed. These vehicles along to the 1st Cavalry Division, and the division carried on the turrets and the hull side.

storage being used for camouflage. Hungarian armour after 1942 usually used four-digit unit numbers carried only on the turret rear (Bator István).

Bottom left: This Hungarian Pz Kpfw III is finished in German dark yellow overall, a Hungarian style serial number identifies its nationality. (István Bator)

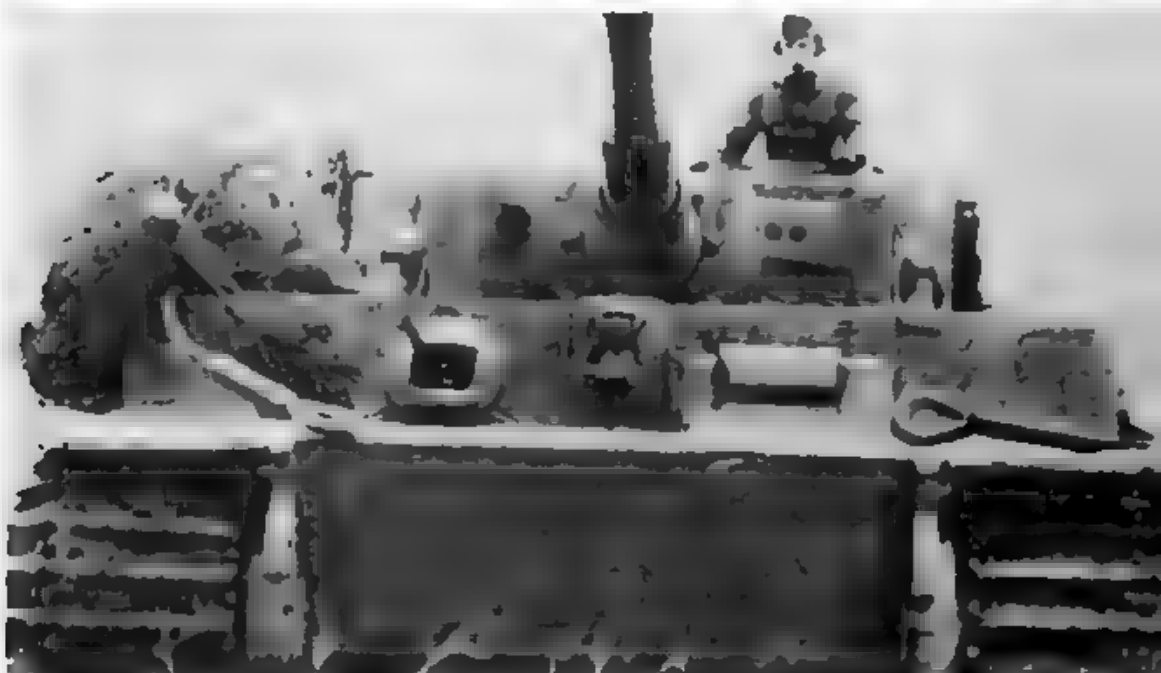


**Top right:** A Pz Kpfw IV Ausf D of the Hungarian 1st Armoured Division during the Don campaign in 1942. The Hungarian

the rear and sides in much the same position as on German vehicles. The rear licence plate

Hungarian vehicle. The left and corner above the licence plate is a bisected rhomboid insignia, indicative of a medium tank company. The vehicle's tactical number is carried on the rear and both sides of the turret stowage bin. Batory Istvan

**Bottom right:** This Hungarian Tiger II has no national insignia evident and is finished in German dark yellow overall paint. Batory Istvan



#### Unit Insignia

Hungarian armoured units appear to have used divisional insignia but, unfortunately, information on these insignia is scanty. The 1st Cavalry Division used a stylized white horseshoe design; the 2nd Armoured Division appears to have used a white triangle emblem, and the Ludovika Academy used a white angel in a shield. The 1st Armoured Division did not use any divisional insignia in 1942, but some of the sub-formations did use insignia, such as a map-derived tactical symbol for some of the anti-tank companies. Some of the Hungarian tactical insignia are shown in the accompanying illustrations and photographs.

#### Tactical Numbering

The units of the Fast Corps do not appear to have had turret tactical numbers in 1941. The 1st Armoured Division used large turret numbers in 1942 that were very similar to the three-digit German style. The 2nd Armoured Division used four-digit turret tactical numbering, painted in thin white numerals. This was usually only carried on the rear of the turret. Hungarian

armour also had a regular system of vehicle licence plates very similar in appearance to the German style. The front serial was carried in a thin white rectangle. The pattern was usually 1H, the national shield followed by a three-digit serial. The 1H referred to Honved (Army), the national shield was a simple background in the green/white/red national colours; and the numbers were usually painted in black. The same details were carried on the rear licence plate, but this insignia was usually almost square in shape and was carried on the rear of the hull. In 1944, a subdued version of the insignia was used without the white background. The licence plate simply consisted of a thin black outline of the insignia with the serial number in black and the shield in the usual colours.

#### Other Markings

The Hungarians occasionally made use of tactical markings, using various rhomboid designs for armoured and mechanized formations. Some Hungarian armoured vehicles, notably the Zrínyi self-propelled guns, carried personal names painted on the glacis plate.



## 84 ITALY

# Poland



Universal  
used in Polish

this one belonging to  
1st Armoured Corps in 1944  
This view clearly shows the  
tactical number and the  
white eagle insignia

In 1943, the Soviet Union began forming a pro-Soviet Polish Army on Russian soil, distinct from the Polish Army fighting in Western Europe with Britain. The new Polish Army was called the LWP (Polish People's Army) and armoured units were raised, organized and equipped along Soviet lines. It would eventually field one tank corps (1 Korpus Pancerny), two independent tank brigades (1 Brygada Pancerna, 16 Brygada Pancerna), two heavy tank regiments (4 Pułk Cieński Czolgów, 5 Pułk Cieński Czolgów) as well as numerous self-propelled gun and other armoured formations, entering combat at Lenino in 1943. During the Berlin operation, Polish troops made up nearly 10 per cent of Soviet forces in the assault.

## National Insignia

The insignia adopted by tank units of the LWP was the Piast eagle, which was painted in white on tank turrets or on the superstructure sides of vehicles such as the SU-76 or ISU-152. There were a number of variations in the design, and some units altered the insignia to identify brigades. For example, in the 1st Armoured Corps, the 2nd and 4th Armoured Brigades added a

white circle around the eagle, while the 3rd Armoured Brigade painted it on a red background with two white circles around it. The 16th Armoured Brigade placed it within a broken circle, while the 1st Armoured Brigade carried the eagle without any further decoration. The 4th Heavy Tank Regiment carried the eagle on a red diamond.

## Tactical Numbering

The tanks and self-propelled guns of the LWP had a standardized numbering system in each unit, but the style varied from unit to unit. In the 1st Armoured Corps, each of the three battalions numbered their vehicles with four-digit figures. The first digit indicated the battalion (1-3), the second the company (1-2 in the 1st battalion, 3-4 in the 2nd battalion, 5-6 in the 3rd battalion), the third indicated the platoon (1-3) and the last indicated the vehicle (0 for company HQ, 1-3 in the 1st platoon, 4-6 in the 2nd platoon, 7-9 in the 3rd platoon). Therefore, 3212 indicated a tank of the 3rd battalion, 2nd company, 1st platoon, 2nd vehicle.

The 1st Armoured Brigade used three-digit numbers (except for the brigade HQ which used 1000 and 1001).





with the first number (in 1944) indicating the regiment (1-2), or in 1945 indicating the battalion (1-3), the second number indicated the company, and the third number indicated the platoon and individual vehicle in the same fashion as mentioned above for the 1st Armoured Corps. The 16th Armoured Brigade used four digit numbers, the first indicating the battalion, the second the company, the third the platoon, and the fourth the vehicle (1-3). The 4th Heavy Tank Regiment used four-digit numbers beginning with '4' until March 1945 when it reverted to a three-digit number also beginning with '4'. The first number was the same throughout the regiment, the second indicated the company and the third indicated the vehicle and platoon (1-2 first platoon, 3-4 second platoon). The 5th Heavy Tank Regiment used four-digit numbers beginning with '5'. The second number indicated the company, the third indicated the platoon, and the fourth indicated the vehicle. The self-propelled gun regiments generally used three-digit numbers. A number was assigned to each of the regiments which was used as the first digit; for example, 3 was used by the 13th SP Artillery Regiment (SU-85), 8 was used by the 28th SP Artillery Regiment, 2 by the 2nd SP Artillery Detachment. In the regiments, the second digit usually indicated the battery, while in the small SU-76 detachments the vehicles were simply numbered consecutively.

#### Other Markings

During the Warsaw uprising of 1944, Polish Home Army forces, besides LWP armoured units, captured several German tanks which were used in the fighting. These vehicles remained in German colours, but had various names, militia insignia and national insignia added. Some of these are shown in the photographs and illustrations.







**Top left:** A German Sd Kfz 250/10 captured by the Polish 13th SP Artillery Regiment. The vehicle was impressed into Polish service and, after their insignia were added, it was used for reconnaissance during the fighting in Pomerania in 1945.

**Bottom left:** A T-34 Model 43, probably of the 4th Heavy Tank Regiment, during the Berlin operation in April 1945. The Soviet-style white turret band and roof cross have been added hastily, almost completely overpainting the national eagle insignia.

**Top center:** An SU-85 of the Polish 13th SP Artillery Regiment in action in May 1945. This shows a rare combination of the April turret series and roof cross, which the crew has attempted to strip off prior to adding the May white triangle identity marking. The white triangle can be seen on the hull side and would have been repeated on the roof, over the scraped remnants of the earlier cross insignia. Also evident on the hull side is the national white eagle at the rear, and the vehicle number 13111, which was repeated on the left hull front over the driver's hatch. This particular vehicle was knocked out during the fighting against the Pomeranian wall in February 1945, but was rebuilt and returned to action.



**Top Right:** 'Chwast' was one of the armoured vehicles captured by the Polish Home Army during the August 1944 uprising. Besides this Hetzer, the Poles also captured several Panthers, an Sd Kfz 251 and a number of other armoured vehicles, even in addition MT3/40.

**Right:** An SU-76M of the Polish 27th SP Artillery Regiment, 1st Armoured Corps during the Victory parade in Warsaw after the war. Several of the sub-units of the 1st Armoured Corps used a circled eagle to distinguish themselves from other Polish armoured units.



# Romania

In 1941, the Romanian armoured force consisted of about 35 Czech R 1 tankettes, 126 Czech R 2 light tanks (LT vz 35, or Pz Kpfw 35(t)), 73 Renault R 35s and 60 obsolete FT-17s. The R 2s formed the 1st Tank Regiment, the R 35s formed the 2nd Tank Regiment, and the R-1s were used by the 1st Royal Cavalry Division. The R-35s had been obtained in part when the Polish 21st Armoured Battalion had been interned in 1939. However, there were inadequate spare parts to support this unit, and when the 1st Royal Armoured Division was formed and sent into action in the Soviet Union in 1941, it went without the R-35s. After fighting during the drive on Odessa and the 1942 Don campaign, the unit's tanks were badly worn, and in September 1942 it was reinforced with 11 Pz Kpfw III Ausf N and 11 Pz Kpfw IVs purchased from Germany. The 1st Royal Armoured Division was virtually wiped out in the Stalingrad débâcle where the old R 2s faced T 34s on very unequal terms. The Germans hastily provided 50 Pz Kpfw 38(t)s in March 1943 to keep the 1st Tank Regiment in the field and, from November 1943, began providing 129 Pz Kpfw IVs and 114 StuG IIIs to reconstitute the division. Besides these German vehicles, in 1942 the Brasov factory began modifying a number of surviving R-2 tanks by the addition of captured Soviet ZiS-3 76mm field-guns. Later, the Germans provided the Romanians with several dozen captured T-60 light tanks which had Soviet F-22 76.2mm divisional guns added in an open casemate mount. These vehicles were used as tank destroyers and were designated TACAM (Tun autopropulsat cu armer mobil 76.2mm) R-2 or T-60. Some of the R-2 versions were later armed with the 75mm system Resite Model 1943, which was essentially a ZiS-3 rechambered to accept German 75mm ammunition. The 1st Armoured Division remained in action alongside the Wehrmacht until August 1944,



**Top:** These Romanian R 1 tanks at the Căminarii in 1940 show the rest of King Carol's army during the King Michael's accession to the throne in 1941. The Romanian vehicle industry switched to the Michael's cross when Banast

**Above:** An R 2 of the Romanian 1st Armoured Division in Russia 1941. The Michael's cross is carried on the full side of white. The full white cross can be partially seen on the open engine deck cover.

**Left:** The R 2 remained the backbone of the Romanian tank force until the winter of 1944, when the division was virtually destroyed outside Stalingrad. This R 2 has had a hasty whitewash finish applied to the turret sides. National Archives.

when Antonescu was overthrown and Romania switched sides. The 2nd Tank Regiment with about 66 Pz Kpfw IV and R 35 tanks and 80 other armoured vehicles (mostly Hanomag Sd Kfz 251 and self-propelled guns) fought in Czechoslovakia, ending the war near Vienna. Towards the end of the war, the Soviets supplied small numbers of T-34-85 tanks, but Romanian equipment remained primarily of German origin.

Until 1940, Romanian tanks had the crest of King Carol II painted on the turret, thereafter, during the war years, the cross of King Michael I was used instead. This was first applied during the 1941 campaign. Usually, a small white stencilled cross was carried on the hull side in white and a white/yellow/red cross carried on the engine deck for air identification. Romanian tanks were usually in the colour of the original manufacturer, which in the case of the R-35s was dark French Army green, and in the case of the R-1s and R-2s was Czech olive drab. The German Pz Kpfw 38(t)s received in 1943 were in panzer grey, while the remainder of the German

armoured equipment received later was in dark yellow with sprayed olive green or red-brown on occasion. The 1st Armoured Division used large white trim turret tactical numbers in 1942. In 1944 they seem to have used thin black or white three digit numbers, in the case where numbers were used at all. Indeed, after 1944, markings do not seem to have been commonplace on Romanian armoured vehicles. Some photographs show the Michael's cross in black on the lighter dark yellow background, but many vehicles appear to have gone unmarked. Many Romanian Army vehicles carried German-style serial number on the front plate consisting of a thin white rectangle with a serial number in black preceded by the letter U. In some cases, the colours on this licence plate were reversed. Romanian armoured vehicles do not appear to have used divisional insignia. The vehicles of the 2nd Tank Regiment that fought alongside the Soviets in Czechoslovakia in 1944-45 used a white circle with red star as their national insignia.

**Top left:** An example of a turret

Soviet

as finished in dark green, but seldom carried any markings. On some

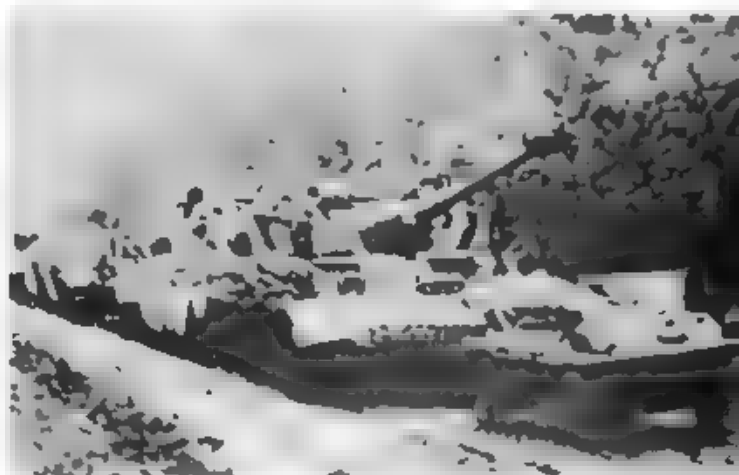
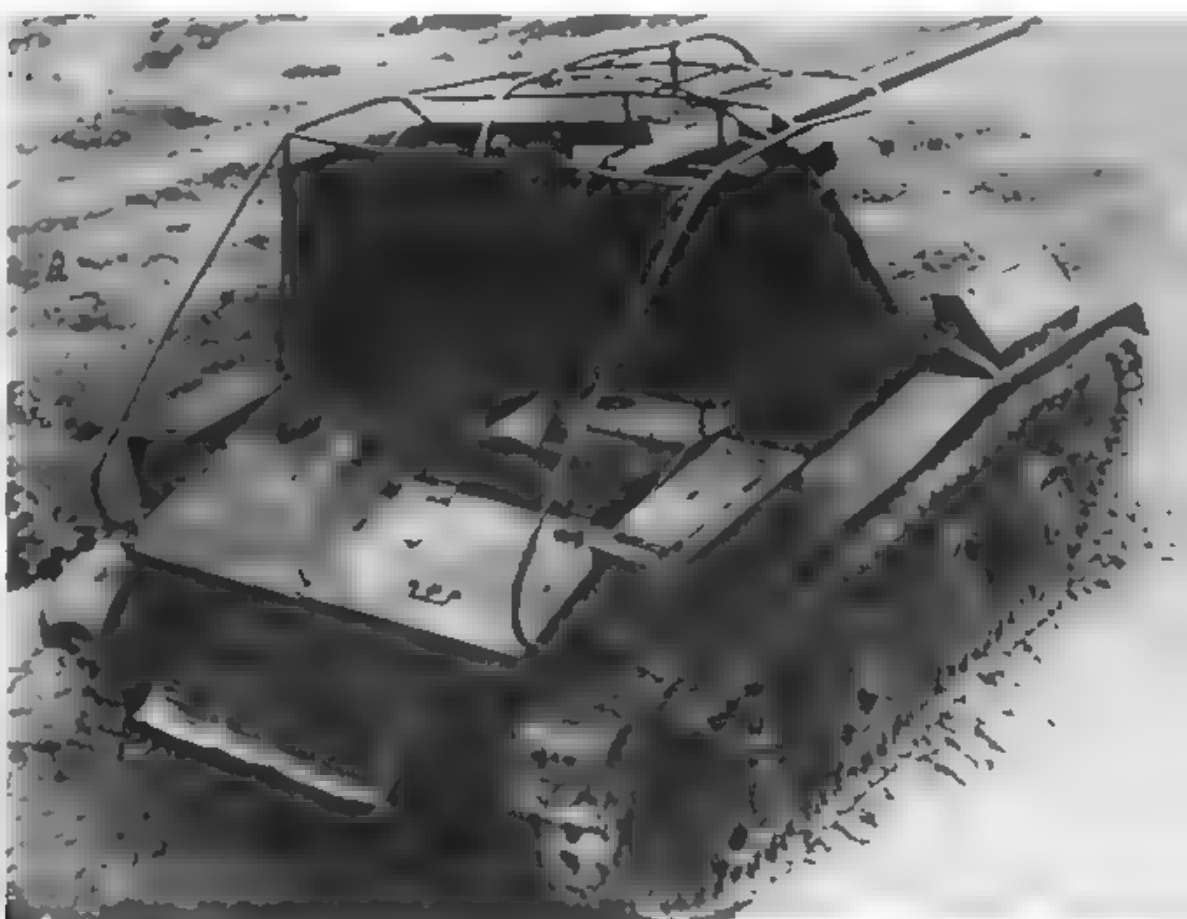
was carried on the rear deck ammunition bin, which this vehicle is without

**Bottom left:** The 2nd Romanian Tank Regiment, which fought alongside the Soviets in Czechoslovakia in 1945, was equipped with Pz Kpfw IV and R 35 tanks. Many of the old R 35 tanks were re-armed with

as is the case with this one. In 1945, the 2nd Tank Regiment used a white circle with red star as a national marking during its fighting. (Ivan Bato)

**Bottom right:** Romanian Pz

were finished in typical





# Slovakia

After their absorption of Czechoslovakia in 1938, the Germans permitted the formation of a Fascist puppet state in the eastern Slovak provinces in March 1939. Slovakia was permitted an army which would be equipped from the matériel of the former Czechoslovak Army remaining on Slovak soil. The former Czechoslovak 3rd Fast Division had left 79 Skoda LT vz 35 tanks in the Levice area and this formed the basis of the new Slovak Fast Division. After the Slovak participation in the 1939 invasion of Poland, the unit was given a further 30 CKD vz 33 tankettes and 13 OA vz 30 armoured cars. The Slovaks intended to build up the unit along the lines of the original Czechoslovak Fast Divisions, but the Germans initially were quite reluctant to supply enough vehicles. Finally, a further 32 Pz Kpfw 38(t) Ausf S and 21 LT vz 40 light tanks were supplied.

The border dispute between Slovakia and Hungary erupted into a short war in March 1939 during the course of which the Slovaks lost at least one LT vz 35. The Slovak Fast Corps took part in the 1941 invasion of the Soviet Union, fighting at Lvov and Kiev. During the Caucasus fighting after Stalingrad, the Fast Division was nearly wiped out and was evacuated minus all its armoured equipment. The Germans began efforts to rebuild the Army with the supply of 37 Pz Kpfw 38(t)s, 7 Pz Kpfw III Ausf N, 16 Pz Kpfw II Ausf F and 18 Sd Kfz 138 Marder tank destroyers. However, in late August 1944, a military coup was staged launching the Slovak uprising against the Germans. The insurgents had a significant portion of remaining Slovak armour, including about 30 light tanks, 12 Marders and at least 1 Pz Kpfw III. Also, they built three armoured trains using LT vz 35 tank turrets for armament. The rising



**Above:** A Slovak OA vz 30 armoured car operating in the Ukraine in 1941. Evident on the turret is the double-armed Slovak cross carried on some vehicles in 1941. (Ivan Bajtos)



**Left:** A Slovak Pz Kpfw III Ausf N in the Caucasus in 1943. This vehicle is finished in dark yellow overall and would have the tricolour Slovak crest on the side of the turret armour. Slovak tanks fighting in the 1944 uprising were marked similarly. (Ivan Bajtos)



**Above:** An LT vz 38 of the Slovak Fast Corps on parade in 1940. It is finished in the Czech three-colour scheme. The licence plate is clearly evident in this view. (Ivan Bajtos)

**Above right:** A Slovak LT vz 40 command tank in Russia, 1941. Note that a German flag was used for air identification.

**Right:** Tanks of the Slovak Fast Corps in the Ukraine in 1941. In the background are a number of LT vz 35 in Czech three-colour camouflage with red three-digit turret numbers heavily bordered in white. In the foreground is an LT vz 40, which is painted in panzer grey overall since it was manufactured after the German annexation of Czechoslovakia.



was finally crushed before the insurgents could link up with Soviet troops.

The Slovak Army's original armoured equipment was finished in its original Czechoslovak colours of olive drab, sand and red-brown. They were marked with Czechoslovak serials, which were thin black rectangles with white numerals in the 13-540 to 13-963 range. The later shipments of equipment manufactured under German control, such as the Pz Kpfw 38(t)s and the LT vz 40s, were supplied in panzer grey. They carried the new-style serials, which numbered V-3001 through V-3131 (V for Vojska, or Army) and, as in the case of the Czechoslovak serials, these rectangles were carried on the bow and centrally on the rear plate. The new vehicles had the double-armed Slovak cross painted in white on the front of the turret side, while the older tanks had white and red three-digit numerals painted on the rear of the turret sides. In 1942, these markings gave way to the national shield, which was blue, white and red. The last batch of equipment received from the Germans had the black serial rectangles and the national shield, but were left in their original German dark yellow finish. The three armoured trains built during the Slovak uprising were finished in the tricolour pre-war camouflage.



# Yugoslavia

The Yugoslav Army had two tank battalions with a third in formation prior to the German invasion in the spring of 1941. The I Bataljon bornih kola (I Bbk) consisted of 48 French FT-17s and NC-27s with a squadron of 8 Czechoslovak S-IId tankettes. The II Bbk was to be formed with 50 French Renault R-35s purchased in February 1940, but it is not known how many actually arrived prior to the fall of France. The III Bbk was supposed to be formed with Polish 7TP light tanks, but these plans had to be dropped with the collapse of Poland in 1939. Instead, the unit was formed in the Soviet Union with BT-7 tanks, but was not ready to be returned to Yugoslavia in time for the 1941 fighting. The few surviving photographs of Yugoslav armour during this period would seem to indicate that the vehicles were left in the colour of the manufacturers; in the case of the French equipment in dark French Army green overall, and in the case of the Czechoslovak tankettes in a tricolour camouflage of olive drab, sand and red-brown. Except for a few tanks with slogans chalked on them, no national insignia or other markings seem to have been carried.

Although the Yugoslav Army ceased to exist, many partisan units sprang up in the Serbian and Croatian provinces. The Communist partisans under Tito eventually built up the largest tank force employed by any resistance organization in Europe during the Second World War. They captured their first tank, a French Hotchkiss H-39, in September 1941. Several dozen more were captured during the war, mainly French light tanks such as the H-39 and R-35, Italian CV 33 and CV 35 tankettes and French Somuas being used by German and Italian anti-partisan units. In fact, by 1944 the partisans had several tank 'battalions' equipped with over a dozen tanks each. In July 1944, the partisans formed the 1st Tank Brigade with the aid of the British







**Top left:** A Slovak LT vz 38 in 1942 in panzer grey overall with the national crest on the turret side in white/light blue/red. (Ivan Bajtos)

**Left:** Yugoslav S-Id tankettes of the 1 Bdk on manoeuvres before the outbreak of the war. These vehicles were finished in the same colours as other Czech-manufactured vehicles: khaki (dark green) with cream and brown patches.

**Bottom left:** The partisan units of the Titoist forces captured several dozen tanks during the savage guerrilla war in Yugoslavia, in this case an Italian L6/40. Some had a white circle with red star or a plain white star added as national insignia, while others carried the name of their militia painted on the side. This vehicle still remains in the Italian scheme of brick red with dark green blotches.

**Top right:** The 1st Yugoslav Tank Brigade was raised with British aid and landed on the Dalmatian coast in 1944. This M3A3 light tank is being serviced by its crew. It was finished in US olive drab with field drab bands. On the hull side is the national flag in blue/white/red with a red star in the centre, and red stars can be seen on the glacis and mudguard.

**Right:** An NC-1 (foreground) and FT-17 of the 1st Yugoslav Tank Battalion knocked out during the fighting in 1941. These tanks generally were unmarked except for French-style bridging symbols. (National Archives)



Army at Bari on the Italian Adriatic coast. It consisted of 56 M3A1 and M3A3 Stuart light tanks originally, and 24 AEC Mark III and IV armoured cars in four battalions, though its strength was raised later to 75 Stuarts. With Anglo-American naval support, the brigade was landed on the Dalmatian coast in November 1944, whereupon it began to fight its way north to Trieste. During the drive through Yugoslavia, several Stuarts were turned into improvised self-propelled guns by removing their turrets and adding captured German PaK40 75mm anti-tank guns or quad 20mm FlaK38 anti-aircraft guns. Vehicles of this unit were finished in olive drab with bands of field-brown disruptive camouflage

paint. National insignia in the form of the tricoloured national flag (blue/white/red with a red star centred in the white field) was carried on the turret or hull sides.

In the meantime, the 2nd Tank Brigade was formed in the Soviet Union, equipped along Soviet lines with 60 T-34-85 tanks. This unit took part in the liberation of Zagreb and met up with the 1st Tank Brigade in Trieste. Its vehicles were finished in dark Soviet Army green overall. Most vehicles carried a three-digit white turret number, and some had a red star painted on the turret front. These red stars, in Yugoslav style, had thicker arms than usual. Some vehicles also had slogans chalked on the turret.